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The Canadian Therapeutist and Sanitary Engineer

INCORPORATING THE CANADIAN JOURNAL OF PUBLIC HEALTH

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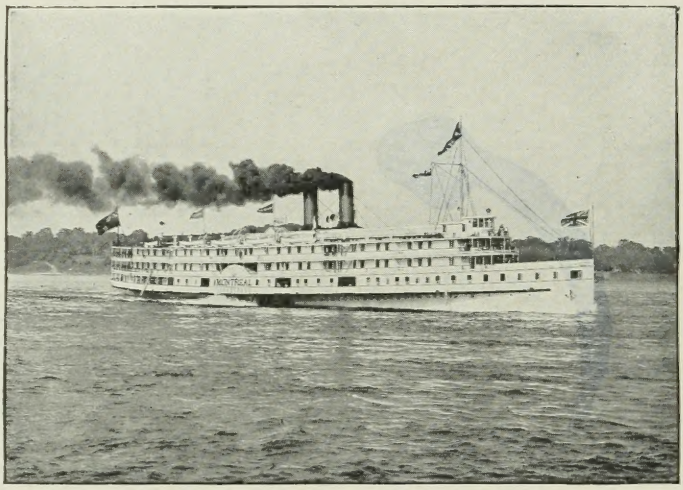

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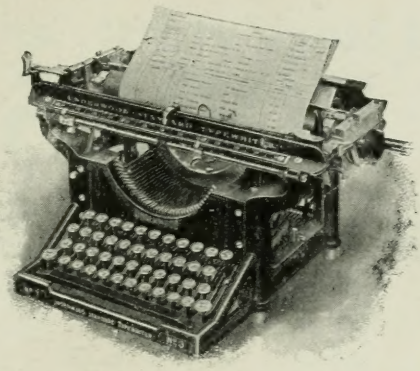

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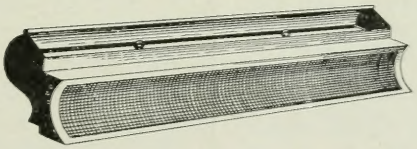

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The
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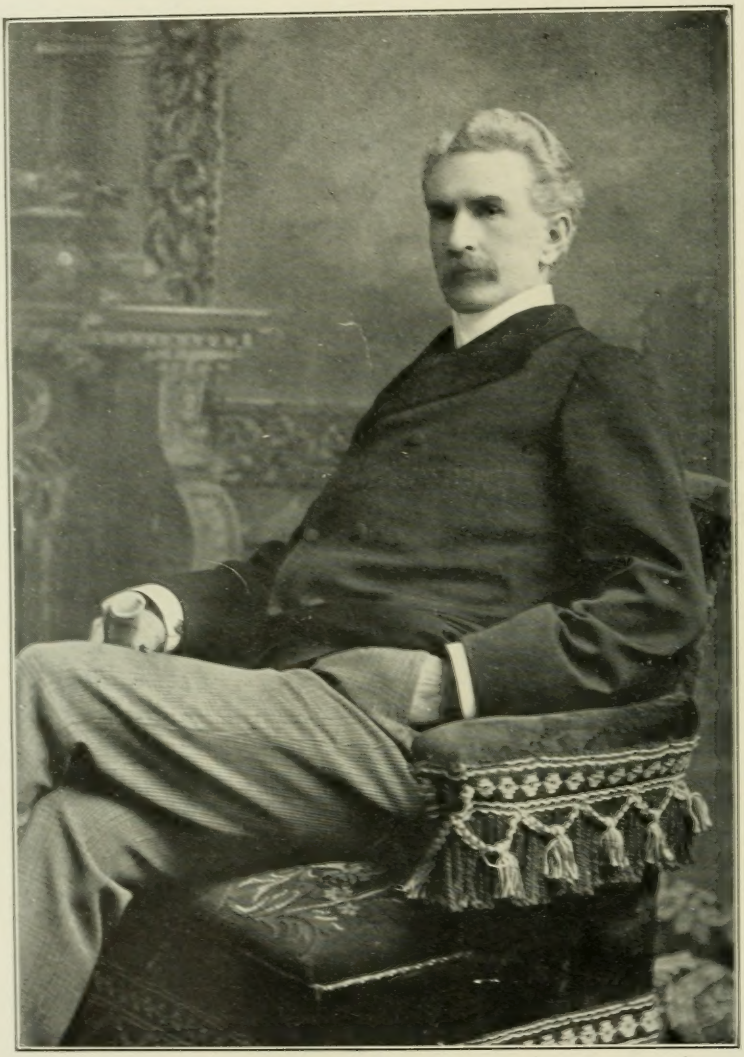

CHARLES J. C. O. HASTINGS, M.D.
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Special Articles

PUBLIC SCHOOL MEDICAL INSPECTION

By JAMES STEWART, M. D.

A little boy in one of the public schools was the butt of his school fellows, and the despair of his teacher, because, apparently, he was so hopelessly stupid.

This little boy stood silent when the teacher asked him to do a simple sum which she had chalked on the blackboard, and the other boys secretly jeered at him while the teacher lost interest in him.

On the playground the other boys called him a "dub," because he always muffed the ball, and once, when he had a fight with a smaller boy, he was repeatedly hit in the face until he ran away. The little girls made faces at him because he was clumsy, and was always running into chairs and stumbling over things, and his life was very miserable indeed.

He was a very solitary child, and when the unhappy hours of the school day were over he went away by himself, shunning the other boys, and was called sullen and unsociable.

One day a physician came to the school and among other things, learned that this boy was sullen and stupid. The teacher gave him a very bad name, indeed. The physician studied the boy's face for a moment, and saw in it latent possibilities of a bright mind behind the apparent dullness, and surmised the cause. Calling the little chap to the window, he asked:

"What kind of a bird is that on the fence across the road?"

The boy hung his head, while a dull flush of shame spread over his face.

"I don't see any fence," he mumbled, at last. This was what the physician suspected. The boy was very near-sighted.

The physician sent for the boy's mother and told her that the little chap should have glasses immediately, because his eyes were in bad condition. "His father's eyes are bad," said the mother, "and my

eyes are bad, and so Jakey's eyes are bad, too. But I don't want any glasses on him yet. When he grows up he can have his father's glasses."

The boy was sent to an oculist at a clinic, his eyes were thoroughly examined, and he was given a prescription for a pair of suitable glasses, which were paid for from a fund provided for that purpose by a society of charitable ladies.

No one who is near-sighted, and who has not, therefore, put on a pair of glasses for the first time, can comprehend the wonderland which opened up to that boy. The dull, grey, unbeautiful world suddenly had become glorified. That night the boy, for the first time, saw the stars and asked what they were, and if they had always been there in the sky. For a week he revelled in such new things as a tree in foliage, the shape and color of a horse, the colors of the houses in the streets, and of fabrics in the show windows.

When he went to school one of his greatest tormentors raised a shout of "Four-eyes," and was promptly slapped. The stupid boy no longer ran into things although for a while he stepped too high. His stupidity vanished as by magic and his eagerness to learn would have been pitiful if it had not been supremely stimulating. He saw through magic glasses.

This boy's experience is not singular. It has occurred to many children, all of whom have been saved from being chronically stupid and worthless by the discovery of their visual defect and being fitted with glasses.

It is not so very long ago that another cause for stupidity and general backwardness among school children was discovered, the presence of adenoids in the throats and noses of the little victims who never filled their lungs properly, and who sat around with their mouths open gasping for breath. The removal of adenoids is a simple and comparatively painless operation, and it is simply another case of a dull world being changed into a bright and beautiful place in which to live.

There are four tonsils in every normal throat. These are two glandular structures popularly termed tonsils (the faucial tonsils); the third tonsil is situated in the vault or upper part of the pharynx, just back of the nose, and the fourth tonsil, located at the base of the tongue.

Only when diseased or enlarged are the tonsils abnormal. When the faucial tonsils are enlarged the voice is thick and disagreeable. More rarely breathing is not interfered with, but disease of the ear is caused. When the third tonsil is enlarged, because of its position back of the nose, it projects over the openings of the nose into the throat, and interferes with nasal breathing; the child breathes with the mouth partially open, and his speech is nasal.

Adenoids, or enlargement of the third tonsil, are the most common cause of deafness in children, and sometimes cause the deformity of the chest, called "pigeon breast," and interferes with the child's physical and mental development.

Defective hearing, or half-hearing, is more common in children than ever is suspected. A child who should be bright, mentally alert all the time, seems stupid, inapt, uninterested in things going on about him, or just lazy, and his teacher and parents and fellows come to have a sort of contempt for his mental ability. He gets little sympathy if he does not seem to understand at once what is said to him or "catch on to" the games or speech of his playfellows. It is because he is partially deaf from one cause or another.

The strange affinity which the homely bean has for the inner ear of the child is,

in a great many cases, the cause of the deafness of children, particularly boys.

Fully ninety per cent. of the children in the public schools suffer from dental caries, or decaying teeth, while only about 45 per cent. have some defect of the hearing, defective sight or throat troubles.

It is this prevalence of bad teeth among school children that has caused educators to give more attention recently to this branch of school hygiene than ever before. But yet statistics on the subject are woefully lacking. How great is the retardation of children from bad teeth, school medical inspectors are not yet prepared to say, but they all agree that next to defective vision it is the greatest cause of backwardness in schools. The reason is that children with decaying teeth suffer from improper mastication of food which results in nervous and digestive disorders which impair their mental ability. It is not the acute toothache that causes the uneasiness, for this is soon discovered and remedied, but the slow and general deterioration of the child's health of which even itself or its parents are unaware.

Now school medical inspectors examine the teeth of every child, and make a report to the parents of the condition, asking that it be remedied. From time to time the examination continues to learn if the parents are having the defective teeth filled or extracted.

If the parents of the child with bad teeth are unable to pay a dentist, the child is sent to the clinic of one of the dental schools in cities, and is given treatment gratis; or other means are found for remedying the defect.

While the work of health departments is largely devoted to caring for the vision, hearing and teeth of the children, their large usefulness is in defending the schools from infectious and contagious diseases. Once a year at least every child in the schools should be examined generally, and specifically, and for the purpose of ascertaining the existence, if any, of a physical defect which will interfere with the pupil's progress in school.

Daily examinations may be made in the schools for the purpose of detecting the presence of communicable diseases and to detect unsanitary conditions of the school buildings and premises.

Great care should be exercised by medical inspectors in detecting and stamping out contagious diseases, and a supervision should be established over all the children who are so afflicted. After there have been cases of scarlet fever in a school, no child will be permitted to enter the school until he has been examined.

The children soon grow to know and like the medical inspector, and have no fear of an examination of the eyes and mouth, and do not make much fuss when they are told that they will have to go to the dentist and have their teeth filled. Well plugged teeth even become a badge of honor among the little boys and girls, and a matter of family pride.

CARE OF THE TEETH

By GEORGE GRIEVE, D.D.S.

It is quite evident, according to researches made through the history of ages, that it has always been considered of more or less importance that the teeth as well as other parts of the body, should be cleansed, in order that the individual might enjoy good health and the esteem of his fellows.

The earliest Chinese works on medicine show that eighteen hundred years before Christ some attention was given to the care of the teeth.

About 1500 B.C., some of the Hindu sacred works, as well as those on medicine, contained, among other laws of health, rules for the cleansing of the mouth after eating.

The early Romans, too, had knowledge of the advantages to be derived from the cleansing of the teeth. J. Grasset St. Sauveur, writing of these people in "L'Antique Rome," said: "In order to keep their teeth clean and white, they used a great deal of a certain liquid of curious composition. They knew the use of *small brushes* and toothpicks of gold, of silver and of quill." Jacob von Faulke, in "Greece and Rome, Their Art and Life," referring to the matter of growing old, says: "She resisted to the last, concealed her wrinkles, helped her figure with judicious padding, and replaced lost teeth by artificial ones of ivory, fastened with gold."

As early as the second century dentistry was a recognized art, but during the dark ages, with many other of the arts and sciences, it languished, and had it not been for the monks, to whom the later generations are greatly indebted for preserving records, it might have been lost sight of entirely. In fact, it is believed they did more or less to relieve suffering due to diseased conditions of the teeth.

With the exception of references to cleaning the teeth, history shows that about the only form of dentistry practised by the ancients was the restoration of lost teeth by artificial substitutes. In those times artificial teeth were very crude affairs, and the wearers were usually objects of ridicule. If the dentistry of to-day were not of such a high order we would probably take more care to preserve our natural teeth.

The profession of dentistry has made very decided progress during the past fifty years, and has now reached a high state of perfection in the matter of repair of diseased teeth and the replacement of lost ones by artificial substitutes.

A great deal of attention is now being given by scientific men to the study of prevention of disease in all its forms, and much success has already been achieved along this line.

In dentistry to-day the trend of thought is especially directed toward prevention of decay and other pathological conditions by a system of cleansing of the mouth and teeth and the regulation of the quantity of the secretions. Oral prophylaxis is the name applied to this particular branch of dentistry, which is receiving more and more attention each year. It is believed that in time the chief energy of the thorough and up-to-date dentist will be expended along this line, in order that destruction of the teeth may be prevented. He will take particular care, too, to instruct his patients in the best methods of caring for and cleansing their mouths and teeth. The

dentistry of the future will be a preventive rather than a curative treatment.

As we become more enlightened upon the subject of cleanliness, we will begin to reap more fully the benefits of its practice; in fact, we are now able to control to a great extent the spread of disease, by vaccination against some forms, purification of drinking water, food, etc., prevention of accumulation of filth, and cleanliness of our persons and surroundings generally.

A great many forms of disease are caused by germs which enter the body, chiefly through the mouth, which latter has been aptly termed "the vestibule to the whole system." The members of the profession of dentistry realize this fact, and are putting forth their best efforts to take advantage of the opportunity, which is theirs, as guardians of the mouths and teeth of the public, to not only prevent destruction of the teeth by caries, but also to control, in a large degree, many other forms of disease.

It is confidently anticipated that by the intelligent practise of oral hygiene more will be accomplished to prevent decay of the teeth during the next twenty years than in all the ages that have gone before.

The teeth have, among others, three most distinct functions, viz., mastication of food, assistance in articulation of words, and that of giving beauty and expression to the face.

Mastication is the chief function of the teeth. The crushing of the food is not the only end accomplished in mastication, but during the process the glands situated in the mouth are stimulated to secrete large quantities of saliva; these fluids become incorporated with the food and perform the first step in digestion. If the teeth and other tissues of the mouth are in an unhealthy state, their use is avoided, and the soft, pulpy articles of diet are chosen—those which will *slip down* with little or no mastication. In such cases the food is taken into the stomach without the normal quantity of saliva which is required in digestion. The food should be masticated until it is ground to the very finest consistency.

To give a little idea of what thorough mastication means, tender beefsteak should be crushed between the teeth about fifty or more times before swallowing; roast pork, thirty to forty times; tender chicken, thirty to forty times; bananas, which are usually bolted, and are very injurious on this account, should be chewed twenty times at least to give the salivary glands an opportunity to secrete sufficient saliva to help in digestion.

There is great power in the muscles of the jaws, some men being able to close their teeth together with a pressure of two hundred and fifty pounds. This power is there to enable the teeth to crush the food. Those people who have not such great strength in their jaws can develop it to a certain extent by thorough mastication, just as other muscles of the body are developed by exercise. Muscles in all parts of the human and animal anatomy are developed according to the demands placed upon them.

Mr. Fletcher's demonstrations of what can be done in the preservation of health and strength by mastication have gained the attention of the scientific world.

Digestion is dependent not only upon the normal working of the stomach, but also upon other organs of the body. If the food is clean, properly prepared and well masticated before entrance into the stomach, the other organs are materially assisted in the work of digestion, but if the food is bolted and not mixed properly with the saliva, it will not be thoroughly digested, and as a consequence,

tainted breath, headache and a train of other ill effects will follow.

For distinct articulation, a matter of particular importance to public speakers and singers, the full complement of teeth in normally developed jaws is necessary.

Nature is often interfered with in her work of development, resulting in malformations and irregularities of various kinds. Cleft palate, for example, is a failure of the right and left halves of the upper jaw bones to unite in the median line; this leaves an opening between the mouth and the nasal cavity, and makes articulate speech and swallowing almost impossible. If the cleft is in the anterior portion of the bone, it may prevent the union of the tissues of the lip, a condition known as hare-lip, which is most disfiguring. Cleft palate is easily corrected in childhood by the surgeon, but may be remedied in some cases even in the adult. Where for any reason an operation to close the cleft cannot be performed, it is possible to have inserted by a dentist an appliance which will cover the opening in the palate and improve articulation and deglutition.

Irregularity of the teeth also interferes with speech, particularly in those cases where the arch, or jaw, is very narrow. This narrowness of the arch is due also to lack of development of the bone. The work of correcting this condition is known as orthodontia, a science which has made rapid strides during the past ten to twenty years. In many of the large cities a few men are now devoting their whole time to orthodontia, but many dentists do more or less of it in their general practice. Irregularities of the teeth should be corrected just as soon as they manifest themselves. The treatment is almost painless and fairly easy in the case of the child, but becomes more complicated and difficult as years advance.

The loss of even one tooth may affect the speech somewhat, and the result of the extraction or decay of several is sure to be disastrous. The posterior teeth are really more valuable than those in front, perhaps not from the standpoint of appearance or articulation, but in general usefulness. Their loss, too, has more effect upon the face than most people realize.

No organ, or set of organs, has greater effect upon the expression of the face than the teeth. If they are decayed or irregular, an otherwise beautiful face may be marred very decidedly. King Solomon, whose court was the home of fashion and beauty, alluding to beautiful teeth, said: "Your teeth are like a flock of sheep, even shorn, which comes up from the washing." Ovid, a Latin poet, recommended as an antidote to love, "to make her smile who has bad teeth." He also said to a young lady, "I can perceive your attention to the graces by the whiteness of your teeth."

The cleanliness of our teeth is indicative of our tastes. A particular charm in many faces is the regularity and beauty of the teeth, giving to the mouth a natural and pleasing expression. If any are lost, or do not lock correctly with their antagonists when erupting, the natural development of the entire structure will be interfered with and irregularity will follow, changing more or less the whole expression. When a tooth is lost, those adjoining gradually tip into the space, and soon their usefulness is interfered with; it is this shifting of the teeth which often causes an irregularity. There is a correct position in the dental arch for each tooth, and if from any cause even one is misplaced, it is liable in time to affect the whole set. It is almost as great a loss to lose a tooth as to lose a finger.

Adenoids, situated at the back of the nose, a condition from which many children suffer, has often a very marked effect upon the teeth, and consequently upon the face. This enlargement of the tonsil closes the posterior openings of the nose, and the child is compelled to breathe through its mouth. If this abnormal respiration continues over a long period, the upper front teeth will protrude, and the lower lip roll in behind them. This disfigures the face very decidedly. The adenoids should be removed by the surgeon and the teeth drawn back to their normal position by the orthodontist or dentist, so that the child can close its lips and breathe normally.

Dental caries is a disintegration or breaking down of tooth tissue, resulting from the action of certain species of micro-organisms. Tooth decay is persistent; it goes on very rapidly in some mouths, and more slowly in others, according to the condition of the secretions, the general health and the care taken in cleansing the mouth and teeth.

Neglect of proper cleanliness of the mouth is one of the chief causes of tooth destruction, as well as other diseases.

Each germ disease, whether it be decay of the teeth, tuberculosis, or any other, is the result of the action of specific forms of bacteria. The warmth, moisture and presence of food in the mouth make it a desirable habitat for germs. In the average mouth each drop of saliva may contain between four and five thousand germs, and in a neglected one as many as one billion one hundred and forty million micro-organisms have been found. In almost any mouth there may be present the germs of many diseases, such as diphtheria, typhoid fever, cholera, pneumonia, tuberculosis, etc., and yet if reasonable care is taken in the cleansing of the mouth, and the general tone of the system is kept up, the individual may never contract any of these.

The particular germs which cause decay of the teeth do so in this manner: They seem to attach themselves to the smooth surfaces of the teeth by means of little gelatinoid plaques, and if surrounded by a suitable soil in which to grow, such as a collection of food, and are not disturbed, their action upon the food causes the production of an acid. It is this acid which destroys the teeth. The colonies of germs cover themselves in with the plaques which they form, and the acid which is produced by their action upon the food is held in contact with the teeth by these plaques, and is not diluted or washed away by the saliva. The acid first softens the surface of the enamel and thereby makes it rough, which facilitates the lodgment of more germs and the food in which they grow. The destruction goes on until the enamel is penetrated and the dentine reached. This latter part of the tooth is less dense than the enamel, and is destroyed by the acid much more rapidly; a tooth which may have only an opening through the enamel large enough to admit the point of a pin, may have a very large cavity of decay in the dentine. The germs crowd into a cavity of this kind, and the food being constantly supplied to them, they grow luxuriantly.

Sweet and starchy materials form the best soil for the growth of bacteria. Their first action upon the food is to transform the starchy portions, such as bread and potatoes, into sugar; next the sugar is changed into an acid. It may thus be readily understood why sweet things generally are so destructive to the teeth, as the acid which causes the decay is formed very quickly direct from the sugar.

Lack of mastication is a cause of decay, as will be shown further on.

Biscuits, bread and butter, candies, etc., eaten by children at bedtime, without cleansing of the teeth afterward, is responsible for the destruction of millions of teeth.

Micro-organisms, or bacteria as they are sometimes called, are not small animals, but are really species of the lowest forms of plants and require a soil in which to grow.

It is the function of the higher forms of plant life to build great structures, such as the forests, fruits, flowers, etc., and to the lower forms the arduous task of destroying them. These micro-organisms are everywhere to be found. Some species purify, to a certain extent, the water we drink, by destroying the organic substances in it.

The lower forms of plant life do not build largely as do the higher forms, yet they multiply greatly and change chemically—decompose—great quantities of matter that are built up by life, as exhibited in the animal and vegetable kingdoms, and return the materials again whence they came, generally speaking, to earth, air and water.

There are many gradations between the highest and lowest forms of plant life, and it is difficult to draw a dividing line between them.

Micro-organisms grow in organic matter. There are two distinct classes, those which generally grow only in dead organic matter, and those which grow ordinarily in living organic matter, such as in animals or plants. There is another division also, those that cause disease and those that commonly do not.

Each germ disease is caused by the growth of a particular form of micro-organism. Certain species will grow in man and some animals, and not in others. Cattle, for instance, may contract smallpox, but no other animal will, so far as known. None of the animals have typhoid fever, measles, and many other diseases so fatal to man, nor do any of the animals have destruction of the teeth by caries. Many of them have tuberculosis. If a person is exposed to a certain disease, and does not contract it, he is said to be immune, that is, there is something in his system which seems to protect him from this certain disease. The hog is immune to snake poison, the bite of a rattlesnake being of no consequence to that supposedly stubborn animal.

If a person survives an attack of what is known as a self-limiting disease, such as smallpox, typhoid fever, measles, yellow fever, etc., he usually becomes immune to that particular disease. Children who survive diphtheria are immune for a time, but with this, as well as a few other diseases, immunity is not permanent. There are a few exceptions to this rule in some of the self-limiting diseases. This condition of immunity is brought about by the development in the blood, apparently by reason of contact with the particular virus, an antidote to the poison which has produced the disease. If a person who is physically strong contracts any of these diseases, the antitoxin is developed very rapidly in the blood, the germs are thus prevented from growing, the patient recovers, and that antidote developed in the blood seems to remain usually throughout the life of the individual. If a person is already in delicate health, the system has not the power to cope with these micro-organisms and death comes more or less quickly as a result of their development.

It is possible, also, to become immune, or nearly so, to decay of the teeth, by continual battle against the germs which cause their destruction.

The first requisite is that the mouth

and teeth must be perfectly clean—the latter shining. *Cleanliness is the best known preventive of dental caries.* The teeth are not always perfectly formed when they erupt, and the development of the crown or exposed portion stops before they appear through the gum. The imperfections in the enamel, when any are present, are usually so small that they would not be noticed, except upon careful examination by a dentist. All defects should be repaired with fillings, and if there is any irregularity of the teeth, this, too, should be corrected if at all possible.

If parents will take their children to competent dentists as soon as the temporary teeth have erupted, and see that every tooth is in perfect condition, then the little ones will have a fair start, and cleanliness will be the main factor thereafter in the preservation of the teeth. Of course it is desirable to have the teeth examined from time to time, in order that any new cavities forming may be repaired early, and to see also that the permanent teeth as they come along are erupting in their normal positions and are free from imperfections.

It is unwise to allow the first, or temporary teeth, to go to destruction without any effort at repair. The too early loss of these teeth is responsible for many irregularities. In order to get the very best results, the temporary teeth should be kept in perfect condition until their successors shove them out.

The most important teeth of the whole set are the first permanent molars, and these are often decayed beyond repair in the mouths of some children before a dentist is consulted. These molars erupt about the sixth year, immediately behind the temporary teeth, both upper and lower, being the sixth tooth from the median line of the mouth. Mothers very often mistake these for temporary teeth, and do not value them on that account, but if they realized how important it is to preserve the temporary teeth, as well as the permanent ones, there would be a great improvement in the masticatory apparatus of the rising generation, both in utility and appearance.

Teeth which are irregular are much more liable to decay than those that are normally placed, because the irregularity facilitates the lodgment of food, and it is difficult to cleanse them with the brush. Other very serious diseases of the teeth and surrounding tissues, such as pyorrhoea, are often due to irregularities.

The teeth in some mouths seem to be more soft than in others and decay more rapidly, so much so that many people think their teeth are so "soft" that it is useless to try to save them from destruction. It is not the "hardness" or "softness" of teeth which governs their decay, but their environment. The saliva varies greatly in different mouths, and it is this variation, more than anything else, which has to do with the apparent resistance of some teeth to decay, rather than any quality of the teeth themselves.

In mouths where the saliva is very tenacious and stringy, decay usually goes on very rapidly, because the teeth become coated over with a viscid film, making a suitable abode for the germs which cause decay. Good vigorous use of the tooth brush several times a day, accompanied by thorough mastication of the food, will in time change this condition of the saliva to that of a clear, healthy consistency. This "ropy" saliva is very often the accompaniment of a nervous disposition, and the teeth are usually very sensitive. When the saliva is gotten into a healthy state, the extreme sensitiveness of the teeth will disappear. When a person is in a delicate state of health, too, the saliva is not normal, and decay of the teeth goes on more rapidly.

There are very many conditions which change the character of the secretions. To prevent the teeth from decaying, one must keep up the tone of the general health, in addition to the proper use of the tooth brush; the poorer the health, the more carefully should the mouth and teeth be cleansed.

Mastication plays an important part in the preservation of the teeth. Any race of people who live upon a class of food that requires a great deal of mastication before it can be swallowed, invariably have little or no decay of the teeth, because during the vigorous chewing of the food the teeth are brushed and the gums massaged very decidedly. Watch a horse chew his food; his teeth do not decay, and rarely give any trouble, except when worn down by hard mastication or broken off by accident of some kind. The hay and oats are hard substances, and during the thorough mastication which they receive in order to be swallowed, the teeth are beautifully polished. The oats contain a great deal of starch, the very substance upon which the germs of decay thrive best, and yet decay does not occur.

It is believed that our forefathers had better teeth than we, and this is accounted for chiefly by the fact that their diet consisted of plain materials that required vigorous chewing before they could be swallowed. They had not, as we have to-day, so many forms of sweet, mushy food; they did not, perhaps, bother very much about tooth brushes, either, but their food did the work which we must do now with our brush. It is well to have for each meal at least one article of diet which requires thorough mastication, and for a final dessert nothing better can be eaten than a good apple, as it massages the gums and clears away to a certain extent any food which has lodged in the interspaces between the teeth.

It is unwise to use liquids with which to "wash" the food down into the stomach. If one desires to drink during meals, he should do so when the mouth is empty.

Children should be given plenty of food that requires thorough mastication before it can be swallowed; instead of mincing it up for them, *let them do the mincing with their teeth.* It has been suggested that "if children could be sent to a chewing school, as they are now sent to a kindergarten, there would be a marked improvement in the race."

The teeth, and also the soft tissues surrounding them, require plenty of exercise, in order to develop them to their most perfect condition, just as do all other parts of the body.

The best known means of cleansing the mouth and teeth, other than by mastication, is by the intelligent use of a good tooth brush, together with plenty of moderately cold pure water. Most brushes which are offered for sale are too large, but it is possible now to obtain brushes which are nearly ideal. One should use a brush of such a size that it may be readily passed between the cheek and the most posterior tooth. In the permanent set this is the wisdom tooth, which rarely receives proper care, because a large brush will not reach it handily, and thus it often decays early, and is looked upon by many as a tooth of poorer quality than the rest, which is not necessarily the case.

The head of an ideal tooth brush for an adult—that is, the portion which carries the bristles—should not be longer than one and a half inches or wider than one-third of an inch. The bristles should be arranged in two rows, each of about seven good-sized tufts of equal length, and one tuft additional to round off the end. The tufts of each row should be directly opposite each other and the

bristles of unequal length, the centre bristles in each tuft transversely being slightly longer than the rest, giving a serrated face to the brush. The bristles should be no longer than half an inch, and of medium stiffness for the average adult. Where the gums are inflamed, softer bristles are indicated for a time, until the tissues become normal and healthy.

Young children, or those wearing orthodontia appliances, should use a brush with but one row of six or seven tufts, the bristles being shorter than those in the adults' brush.

For those persons who may prefer a slightly larger brush than the one described as the ideal for adults, one of three rows of about eight or nine tufts would be the extreme size to do the work properly.

The head as well as the handle of the brush should be slightly curved, the head a little more than the handle, with the concavity on the side containing the bristles. This curve in the head should be just sufficient that the ends of the bristles will nicely fit against the front teeth. The handle should be somewhat flat so that it can be held comfortably without slipping in the hand, and be easily controlled. All edges of the head and handle should be rounded and the bristles set within one sixteenth of an inch of the end and sides of the head. The whole brush—head and handle — should not be longer than five to six inches, and should not have a long tuft at the end.

There is a right and a wrong way to use a tooth brush, and most people employ the latter method. The old see-saw manner of using the brush is a very poor one, as only the high spots are brushed. The motion should be a vertical one, placing the brush high (or low, if for the lower teeth) upon the gums and then rotating it so that the bristles pass over both the gums and teeth. A very short, horizontal motion will drive the bristles between the teeth, dislodge the food and prevent the formation of tartar. To cleanse the lingual, or inner surfaces, the brush should be used in a similar manner; for the upper, place the ends of the bristles in the centre of the roof of the mouth, and roll it down over the gums and teeth; for the lower, raise the tongue and place the brush low down upon the gums, then roll is up over the ends of the teeth; the bristles upon the end of the brush only may be used in some parts. These movements must be repeated several times, using plenty of water. The grinding surfaces are cleansed by the horizontal use of the brush, as is usually practised for all surfaces of the teeth.

This method will seem awkward at first, but with a little practice it will become just as natural and easy as the old way of brushing across the teeth, with the added advantage that by using the brush in this manner the bristles pass in between the teeth to a certain extent, and cleanse more or less the approximal surfaces. By the horizontal motion of the brush across the teeth the gum tissue overlying prominent teeth, such as the cuspids, will in time recede, exposing the necks of the teeth above the enamel. These exposed surfaces of the roots soon become discolored and sensitive.

It may be necessary occasionally to use a good tooth powder or a little camphorated chalk to remove stains, but any preparation used should be one which does not contain ingredients that are injurious to the teeth, and whatever is used should be carefully washed from around the teeth.

Rinsing the mouth thoroughly is an excellent means of dislodging any collection between the teeth. It is possible by

the action of the tongue and cheeks to force a liquid back and forth between the teeth with considerable pressure. Try it. Many persons do not know how to properly rinse their mouth. A very palatable and refreshing wash for rinsing the mouth may be made by adding about ten drops of oil of peppermint to three ounces of water, using a few drops of this solution in sufficient water to rinse the mouth two or three times.

No preparation could be used in the mouth that will kill the germs; they must be brushed away.

Tooth soaps are very injurious and should not be used. Pastes, as a rule, are not as good as powders, because most of them contain sugar, simple syrup, etc., substances which are favorable to the development of bacteria. The advice of a dentist should be sought in reference to the selection of any preparation with which to cleanse the teeth, as many of the articles upon the market for this purpose are very injurious. Some persons use powdered charcoal, pumice or cigar ashes. One might use something of this kind once in several weeks, if the teeth become stained, but if the brush is diligently used two or three times a day at least, with the addition of a good tooth powder once perhaps every three or four days, there will not be much occasion to use a gritty substance.

When food lodges between the teeth, it can best be removed by the use of a quill toothpick. Toothpicks of wood are usually too large and rough, and considerable damage may be done to the gum tissue by their use. Where food lodges there is something wrong, and a dentist should be consulted, as the continual crowding of food into these spaces presses back the soft tissues and exposes the necks of the teeth, and thus decay starts at a point where the germs cannot be brushed away conveniently.

With care, the approximal surfaces of the teeth may be cleansed and polished by means of ordinary rubber bands or floss silk, but the use of these is a dangerous proceeding, because if the silk or rubber band is permitted to snap down upon the gums after it passes the "tight point" between the teeth, it will set up an inflammation in the soft tissues that will cause them to recede. These are all right when used by a careful dentist, but not so in the hands of the average person.

To cleanse the mouth and teeth should be the very first duty in the morning, in order to clear away as thoroughly as possible the germs which may have fastened themselves upon the teeth during the hours of sleep, when the tongue and salivary glands are inactive. It is desirable to get rid of these germs, so that they will not be brushed off by the food in mastication and carried into the stomach along with the breakfast. The teeth should be brushed after each meal to remove all particles of food which may have lodged around them. The most important time of all, so far as the preservation of the teeth is concerned, is after the last meal of the day, taking care to remove thoroughly all particles of food at this cleansing. During the hours of sleep the saliva is not flowing freely, neither is the tongue brushing the surfaces of the teeth; if there is food lodged around them, the germs will have several hours during which to grow undisturbed, and having this grand opportunity, night after night, for years, is it any wonder that they destroy teeth? Persons in delicate health, or those whose teeth are very susceptible to decay, would do well to cleanse the mouth and teeth before each meal; it will prevent the entrance into the stomach of many germs which more or less interfere with normal digestion.

WORK FOR PUBLIC HEALTH IN TURKEY

By EMILY RAY GREGORY, Ph.D.
Professor of Biology, American College for Girls, Constantinople

Since the Young Turks have come into power we have had four hygienic lectures, something never possible before, and we feel that the public health work so sorely needed, is now fairly under way. In the first place I must tell you of some of the local difficulties to be surmounted. Among the old Turks, ladies and gentlemen never attended a public gathering, not even church, at the same time, and it would have created a great scandal if any idea should get about that our students, among whom there are thirty Turkish girls, should be present at a gathering to which gentlemen, especially Turkish gentlemen, are invited. Although there is somewhat more freedom among the Young Turks, we could run no risks of that nature. Fortunately, the hall we use does not belong directly to the college, and though situated by our entrance gate, is entirely separate from our buildings, so that there is no need of any student being seen by those attending the lectures.

The lecture on the "Cause and Prevention of Typhoid Fever" was given by Dr. Kadri Raschid Pasha, an eminent young physician trained in Paris. The audience listened intently and appeared greatly interested. After the lecture sets of rules to avoid typhoid fever were distributed.

The next lecture, to which only ladies were invited, was on "The Hygiene and Food of Children." At least one hundred Turkish ladies and our Turkish girls came, and all listened eagerly to a long and able lecture by the same Dr. Kadri Raschid Pasha. Most of the ladies stayed and had tea with us. A negro attendant and a eunuch were characteristic additions. The ladies wore their tcharshafs, but with raised veils.

The interest shown in the lectures was much greater than I had dared count on. Several thanked us before they went away. One lady belonging to a very high family and the mother of one of our students, spoke of the value and importance of such lectures for our young women.

Lately we had a lecture on "Contagious Diseases of Children," by Dr. Suleiman Nouman Pasha, a specialist, who studied in Germany and France.

Then we had a lecture by Dr. Aakil Mouktar Bey on "Tuberculosis and Its Prevention," and we had leaflets on "How to Cure and Prevent Tuberculosis," distributed after the lecture. Dr. Aakil Mouktar Bey has been back in Constantinople about a year, following extended studies chiefly in Paris.

We shall have a lecture soon by another prominent physician, Dr. Assaf Devrish, on "The Education of Girls from the Standpoint of Physiology and Hygiene," and another later on "The Sanitary Care of the House," by Dr. Aakil Mouktar Bey. Dr. Riza Teufik Bey, a prominent Turkish statesman, and Dr. Djenab Chehabbedin, the president of the Imperial Health Commission, have each promised us a lecture.

An American school in Stamboul is now going to have a lecture on tuberculosis and we are supplying it with tuberculosis leaflets. Our students tell me they think that if we can have lectures in Stamboul and Pera even larger numbers will attend.

All the discouraging forecasts of old residents have been disproved. There

has not been a single moment of opposition or even of indifference. On the contrary, the audiences have given their grateful support, and the eminent physicians whom we have asked to lecture for us, although driven by professional work and their duties on the medical staff of the university, have, without exception, given their time and ability freely and thanked us for our efforts for the people. What more can we ask?

If there were means for a small but competent office staff for the necessary business, and a well-conducted exhibit, I believe the movement would grow, and that it would receive financial help. But after thirty years of the misrule and depredations of Abdul Hamid, the people are not in a position to give largely, however interested they may be, and one can scarcely expect the foreign population to be very generous, though self-interest should lead them to it. My experience so far leads me to think that at least for some time a general hygiene campaign will be more effective than to try to concentrate on tuberculosis, and it is, as you see, desirable.

I have not yet become indifferent to the expectorations of consumptives on boats and cars and streets, or indifferent to the knowledge that varioloid probably meets me every time I go to town, and that the water is infected with typhoid germs, nor have I become indifferent to the possibility of danger from the garbage and filth thrown in the streets and heaped on the piers near the boat landings, to be passed and repassed before it is thrown into the Bosphorus, where thousands of gulls indicate the disposal of the last boatload.

But this must not be interpreted as an adverse criticism of the present government. They are struggling bravely with tremendous problems, weighed down with a heavy debt, which they must increase in order to accomplish anything. In fact they not only "accomplished the impossible" in securing a constitution, but they must continue to do the impossible for a generation to come. Think of our having to cut out all advice to go to a hospital in "How to Cure a Consumptive," because there is no suitable hospital to go to, and a physician told me of having visited the tuberculosis ward in one of the hospitals (not Turkish) here this winter, and finding "everything" inside, but the windows all closed!

Vital political problems which are before the empire naturally engross attention, but as we foreigners see the difficulties the Young Turks have to meet on account of the national prejudices of the different races and the mediaeval attitude of the Deputies from the interior, we cannot but feel that to arouse interest in such a vital problem as this is for the empire, and one which is neither political nor religious, but in which all the nationalities must work together for their common good, would very quickly lessen the political friction and advance the common understanding essential to wise legislative action.

A DOMINION HEALTH SERVICE

Its Necessity and Practicability

By P. H. BRYCE, M.A., M.D.
Chief Inspector of Immigration, Ottawa

For good or evil, in my judgment most largely for good, we have established in Canada a federal system of government with a constitution which, while defining fairly well the powers, rights and duties of the Provinces, has left the Federal authority unfettered as to the extent to which it may extend its operations in every field of government not relegated to the Provinces. One of these fields of work with the limitations already indicated is public health.

I have pointed out in previous articles what Provincial and Federal services are doing in public health work. These exist, are officered and supported by the several provinces. These cannot and need not be in any way interfered with, but they can be homologated in the matter of the work to be done and the method of its execution, latitude being given for the varying conditions of local municipal organizations.

As in most of the provinces Provincial medical officers and other officials are giving all their time to public work, it is desirable that at least once a year such be assembled at Ottawa for a conference of what might be called "The Dominion Health Council," which I assume would be established, under a Federal Act providing for its definite constitution, to include the several Federal and Provincial officials and others engaged in public health work in the various colleges, etc. The council would have its permanent executive head or director and staff of scientific and technical workers located at Ottawa. At such an annual meeting sessions would be held at which committees would deal with special subjects, whose reports would afterwards be deliberated upon in general council. If the subject deliberated was a model by-law upon a routine matter whose enforcement would naturally be carried out through local boards it would be recommendatory only, but would gradually and naturally take the place of local by-laws on the same subject. In this way the laws of the several provinces will naturally become unified. If it was upon a matter of wider importance, such as an outbreak of epidemic disease, or one affecting interprovincial or international streams, to be dealt with specifically under a Federal act, its enforcement would logically be through the medical officers, engineers, etc., forming a part of the executive machinery of the Dominion Public Health Service.

In keeping with Canadian practice such permanent officials would be placed for administrative purposes directly under some Federal minister, but the scientific work would be done as a part of the work which I hope to see established in Ottawa, namely, a "National Institution for Scientific Research." It is through such an institution, modelled after the Pasteur Institute, that we may hope to see Canada place science as applied to the national health in its true and proper position. In such an institution there would be workers as in Paris on: (1) Bacteriology, applied to diseases of man and of animals as affecting man. (2) Ferments in their relation to the growth, maturing and hygienic preparation and

preservation of foods, drinks, fruits, dairy products, such as canned fruits, milk and meats, as affecting both health and commerce. (3) Biological chemistry, as applied to the changes which take place in food stuffs, to the contamination of the air, to the examination of the many conditions under which men live and work, and to the pollution of water and its purification. (4) Chemistry proper as applied to the discovery of new uses for natural products, and to the building up of new substances by synthesis (5) Physiology, as applied to the study of plants and animals, under normal and abnormal conditions, as regards climate, soils, food, occupations, etc. (6) The preparation of serums, as utilized in the prevention and treatment of diseases, both of men and animals, such serums as for diphtheria, glanders, rabies, tetanus, smallpox, etc.; and of means by which plants can be defended against parasitic and microbic diseases.

These are but illustrations of what I trust we shall ere long see begun as a concrete example of science applied to national development; both in the promotion of the public health and the development of every natural source of material wealth and the industrial utilization of natural products to our economic advantage.

We must learn to realize that public health has a meaning much greater and wider than that which we have been accucstomed to teach in our medical schools and text books. We have seen how Pasteur, a simple chemist of L'Ecole Normale, came to be the prophet of a new Religion in Medicine and how today we are all humble and sincere worshippers at its shrine. We in Canada—who with much reason claim the twentieth century as especially ours, in the race of human progress are in very truth "The heirs of all the ages," and with our enormous territory, our illimitable and undeveloped resources, with our unique political organizations of adequate central powers and yet unlimited provincial and local freedom, and with a people composed of much of the best stock from many nations—have the opportunity as never before of illustrating what advanced scientific knowledge and unselfish devotion to the highest ideals may do to place man, "God's last creation," many steps higher in his advance toward the Infinite.

THE CITY OF THE SUN

By PROF. PIERRE ROVEDA, MILAN

Every workingman will live in a separate house, every house will have its own garden, receive the full benefit of the sun's rays and be surrounded by plenty of pure fresh air, and every family will be able to buy household necessities at one-half the present cost when the project known as "The City of the Sun" is generally adopted.

In the vicinity of New York, where the need for improved housing conditions is most acute, a practical test of the new plan will be given in a few months by a group of philanthropic capitalists who have studied the matter carefully and are prepared to back the proposition financially.

The plan, in brief, is to build blocks in a circular form instead of the rectangular or square shape which has hitherto been employed. The blocks will cover an area equivalent to that now required for two of the regular city blocks and will contain only eighty living houses, each accommodating but a single family. Each block will consist of two concentric circles of habitations; that is to say, there will be an outer circle and an inner circle and in the very centre there will be a circular garden 125 feet in diameter, intended for the common recreation, and particularly as a playground for children. In the centre of this general garden a pavilion will be provided to accommodate a primary school, a medical dispensary, a gymnasium, an auditorium, library, chapel, and lecture rooms and a steam-heating and electrical plant.

In the four corners which remain free by reason of the circular arrangement of the blocks, four general stores will be located to supply everything that the inhabitants of the block may need. These general stores will be run on the co-operative plan.

The houses themselves will each be forty-two feet deep by twenty feet wide and will stand in a plot sixty feet deep, thus providing a garden at the rear eighteen feet deep. Between the two circles of houses which will constitute each block there will be an avenue sixteen feet wide and there will be four diagonal streets ten or twelve feet wide.

Each house will be made of concrete and framed in iron and will be entirely independent of its neighbor, and will be provided with all modern comforts and conveniences, including bathrooms, hot and cold water, electricity and steam heat. The buildings will be absolutely fireproof. There will be a cellar and storeroom in the basement, a vestibule, hall, dining-room, parlor, kitchen, washroom, pantry and toilet on the first floor, and a hall, three bedrooms, bathroom and toilet on the second floor, with an attic above.

The description of these houses may sound more like that of some gentleman's country villa than of living houses for two-dollar-a-day laboring men, but, nevertheless, the inhabitants of the "City of the Sun" will not have to pay more than $24 a month to occupy one of these veritable mansions, and such a rental will be well within every one's means when living expenses are otherwise reduced through the economy of the co-operative stores.

The principal object of those behind the project, of course, is to provide a means of escape from the awful living conditions in our great cities, where human beings are herded together like cattle, where windowless rooms are often occu-

pied as sleeping quarters by from six to eight adults and three or four children, where the rays of the sun never penetrate and the air is always foul. In the cities themselves, where land is very costly, great improvement cannot be hoped for. Laws may be passed regulating the manner in which tenement houses shall be built, but your constitution prevents your legislatures from going very far in the matter of restricting the use of private property.

Such laws as may be passed may perhaps remedy the conditions prevailing in the congested districts of New York and other great cities to some slight extent, but the only real remedy is eradication, and that will have to be more or less voluntary on the part of land-owners.

As long as the constitution permits the rapacious landlord to squeeze the last dollar out of his land, no matter how many human lives are incidentally squeezed out in the process, the only solution of the problem lies in the evacuation of the cities altogether and recourse to the large tracts of idle land in the suburbs. In the case of New York, there are hundreds of thousands of acres of land lying within ten, fifteen or twenty miles of the city itself which might well be employed for the construction of model houses for the working classes, and it is in such locations that it is planned to erect the ideal community to be known as the "City of the Sun."

The circular formation has been chosen because it furnishes the maximum amount of light and air. Every house is so constructed that it will get the sun at least some portion of the day, while spacious gardens in connection with each house provide ample playgrounds for the children and allow the free circulation of air. The curved surfaces of the houses would receive much more sunlight than straight surfaces.

No heavy traffic will be permitted within the circular blocks, and the children will therefore be able to traverse the various communicating avenues with perfect safety. The playground in the centre of the block will be large enough for most of the games which children enjoy, and the trees which will embellish it, as well as the flowers and other foliage in the gardens of the houses themselves, will tend to purify the air. Around each block there will be an avenue fifty-four feet wide, which will also be lined with trees.

One of the principal features of the new project will be the co-operative stores, which will provide every commodity the tenants may require at cost price, and as everything will be bought in enormous quantities, the inhabitants of the block will be able to purchase their household necessities at much reduced rates. Electric light and steam heat will be furnished, too, at whatever it costs to supply them, which will be inconsiderable.

No family will be allowed to take in boarders unless the household is so small that additional occupants may be readily accommodated. Stringent rules will be made in this connection to prevent overcrowding.

That the project is by no means too Utopian to be practicable will be apparent after a consideration of the amount of capital necessary to run it and the amount of income to be derived from it.

Each block of this "City of the Sun" will cover about four acres, or sixty-four city lots, which at a cost of $1,000 per lot would be $64,000. It has been estimated that the living houses would cost $2,000, the four corner houses $6,000, the central pavilion $8,000 and the sidewalks, roads, machinery for steam heat and electricity another $8,000, making a total investment for land and buildings of $264,-

000. If each of the houses brought a rental of $24 a month, however, there would be an annual income of some $23,040 per year, or nearly 9 per cent. on the investment. It will be seen, therefore, that while the City of the Sun project is philanthropic in a way, it may turn out to be a very profitable undertaking for those interested in it.

In fixing the rent at $24 a month, the cost of keeping the houses in repair was, of course, one of the factors taken into consideration, and as that item might be considerably reduced if the tenants exercised greater care, special inducements will be offered to careful householders, while fines will be exacted from those whose carelessness is responsible for increased expenditure in that respect. In other words, the extra-careful tenants will be allowed a rebate on their rents equivalent to the amount of fines collected from those who are fined for carelessness. In this way a premium will be placed on tidiness and neatness, and the common good will not be prejudiced through the carelessness of thoughtless tenants.

To transfer the denizens of the squalid districts of our great cities to such quarters as this City of the Sun would provide, would be like transporting them to paradise. Not only would they enjoy greater physical comforts, but with the improved living conditions their minds and morals would be uplifted, too. There can't be much self-respect where a whole family is compelled to live and sleep in a single, ill-smelling, badly ventilated room, and disease and crime must flourish where light and air are absent. In this City of the Sun there will be no windowless rooms, no narrow hallways and staircases, no dilapidated entrances and areaways, and the children may romp in the open without fear of being crushed to death by an ice-wagon.

With such improved conditions the death rate among infants will rapidly diminish, there will be a decrease of disease and crime and an increase of sturdy, healthy children and good citizens; culture, refinement, happiness and ambition will be found where hitherto we have looked for only squalor and misery and despair.

While each one of these circular blocks will be to a certain extent a community in itself, with its general stores, its places of worship, its meeting rooms, its administrative offices, its places of amusement and its recreation grounds, the City of the Sun proper will comprise a great number of these blocks, and in addition to the public buildings erected in the centre of the circles other buildings of a public character will occupy entire blocks. Thus there will be a general hospital for every fifteen blocks, a large public school for every ten blocks and a high school for every twenty-five blocks, and such other public buildings as may be needed will be similarly provided.

As a result of these systematic provisions, the City of the Sun will not only be the most healthful and the cheapest to live in, but will present a more beautiful appearance than any community hitherto constructed. Viewed from an airship or from a great height, this novel metropolis will appear like some huge geometrical design, the motif of which will be eccentric circles. The architecture of the individual buildings, being uniform throughout, will preserve the illusion, and the sky-line will be most unique.

The aesthetic merits of the project, however, are entirely subordinate, the principal object in view, of course, being to provide suitable accommodations at reasonable rates to working people and to put an end to the intolerable condi-

tions existing in the tenements of great cities. Sociologists, philanthropists and men of affairs, who have studied the plans, can see no reason why the scheme should fail, and Thomas A. Edison, who has long been interested in the problem of providing proper living conditions for the working man, has expressed great hope in the project. Mr. Edison has invented a system of moulds by means of which concrete houses may be erected within a few hours and at a minimum of expense, and it may be possible to combine the results of his experiments with the plans already made for the erection of the City of the Sun. While the houses that Mr. Edison has designed are somewhat more elaborate than the ones contemplated in my project, special moulds could be designed for my houses, and in that way the cost of construction might be materially diminished and the rentals correspondingly reduced.

The question of transportation is an important one. The City of the Sun cannot be erected in the metropolis, because the land there is too expensive; it cannot be erected in the country where land is cheapest, because the workingman's home must be within reach of the place where he earns his livelihood. It is necessary, therefore, to select a site between these two extremes, and there are few large cities where the problem could not be solved in that way. In the case of New York, the first block of the City of the Sun will be built in the Bronx, about twelve miles from the City Hall, and within half an hour's or forty minutes' riding distance from the heart of the city. A few miles farther out land can be purchased at an average of $1,000 per lot, which would not be too high for the purpose, and new subways will provide the necessary means of transit.

Ideal communities have been planned before and various Utopian schemes have been attempted, but the City of the Sun is perhaps the most ambitious experiment in the construction of model tenements that has ever been undertaken. If it is successful, it will mark a new era in social progress and will be one of the greatest achievements of the already eventful twentieth century.

It is not a moneymaking scheme. There is no thought of money in it. No one expects to make any. But it is a great movement whose object is to take the curse of the slums away from the children and women of the slums.

To give a child a chance to grow up a normal, happy being instead of the disease-ridden, degenerate spawn of the filthy and crowded tenements.

And to prevent the yearly murder of hundreds of thousands of babies who might grow up to be useful citizens of the United States.

LIFE INSURANCE

By JAMES KENNETH PICKETT

Public welfare and the desire of the bread-winner asks protection of dependents—of the family should its bread-winner succumb in the battle of life. Life insurance is the most reasonable way of securing such protection, and the endowment system will also protect the declining years of the insured.

The dictionary defines insurance as "an act or system by which pecuniary indemnity is guaranteed by one party (as a company) to another party in certain contingencies, as of accident or loss, upon specified terms." In Great Britain the term "assurance" is more often employed than "insurance." The words are synonomous.

In 1907 there were forty-five companies licensed by the Dominion Government to do the business of life insurance in Canada.

The net amount of insurance in force on the 31st of December, 1907, which is the date of the latest returns to the Insurance Department, was:

In Canadian companies....	$450,573,724
In British companies	46,462,314
In American companies....	188,487,447
Grand total for 1907....	$685,523,485
Grand total for 1906....	656,261,100
Increase	$ 29,262,385

It will be seen from the foregoing that the Canadian companies obtain by far the largest share of the business written in Canada.

In these modern times the man is seldom met who will not admit the value of life insurance. The antipathy to insurance that once existed has passed away and is now classed with other benighted prejudices. But the life insurance agent still occasionally meets men who, while they admit the value of life insurance as a protection, claim that they could invest their money to better advantage in a bank. There can be no question but that the original idea of life insurance was one of protection pure and simple, and notwithstanding the efforts of many companies, the outcome of so much keen competition, they have never been able to make life insurance compare favorably with a reasonably profitable investment. The value of life insurance protection must not, however, be left out of consideration. It should not take an intelligent man long to decide as to the relative merits of two investments, one of which returns him simply the principal with interest; the other, principal, interest and insurance protection combined. When the insurance companies pay the claims they are never told by the widow—"I wish my husband had put the premium monies into the bank instead."

The signs point to the rapid approach of the day when the business will be conducted from the standpoint of lowering the net cost to the policyholder, rather than from that of obtaining a large volume of new business, which, if as is usually the case—it is obtained at an abnormal cost—is a pecuniary detriment to the existing policyholders. In fact, competition in insurance management is now centering around the expense rate, and the company that can show that its business is being obtained at the least rate of expense is the one being sought after by those who desire the protection of life insurance. Intending insurers would do well to satisfy themselves upon this point

before signing an application, for it is in such companies that their insurance will cost them the least, and in which they will be assured that the business is being conducted in their best interests.

A life insurance policy is a good deal like the purchase of an estate on the instalment plan. There is this important difference, however, between an ordinary purchase by instalments and the purchase of an insurance policy. In the former case the whole number of instalments must be paid, while in the latter the instalments remaining unpaid at death are cancelled. In other words the insured secures his estate and in return pays as much as he can during life, and in the event of his death his representatives are freed from all further liability. It was stated in the "Insurance Press," of New York, that during the year 1906, fifty life insurance companies of Canada and the United States paid in claims $4,648,989 on 2,209 policies held by persons who died within one year after issue of policies. During the previous ten years thirty-four of these companies paid $26,764,985 in death claims during the first policy year.

Life insurance is divided into three great divisions, namely, (a) Temporary or Term insurance, (b) Whole Life insurance and (c) Endowment insurance. Temporary or Term insurance provides for the benefit being payable only if death takes place within a specified term, say, 5. 10, or 15 years. Whole Life insurance provides for the benefit being payable whenever death may take place. Endowment insurance provides for the benefit being payable to the insured on completion of a term of years, 10, 15 or 20, or at prior death. There are other plans, but they are all variations of the foregoing. Each company endeavors to have some special plans peculiar to itself to attract prospective insurers, but when analyzed they will be found to fall under the heading of those mentioned.

The government returns already referred to show that in Canada during the year 1907, there were issued: 142,100 policies on the Whole Life system for $74,457,642; 67,217 policies on the Endowment system for $24,760,016, and 2,749 policies on the Term, and other systems, for $7,807,762.

Some years ago the practice obtained in Canadian life offices of distributing the surplus or profits to policyholders every fifth year of the policy. More lately, however, the practice has been to accumulate the profits for a period of 15 to 20 years and then distribute them. That period is known by several names, such as tontine period, dividend period, accumulative surplus period, etc. Judging from the life insurance bill introduced at a recent session of the Dominion Parliament, but not proceeded with, there is a strong tendency to require a distribution of policyholders' surplus at more frequent intervals, such as trienially or quinquennially. Abuses have crept in and extravagant methods of management have dissipated the profits. It is held by some that a more frequent distribution would prevent loss to the policyholders.

The Whole Life system is the more popular for the reasons that it is less expensive than the Endowment, and because it embodies more of the idea of continuous protection. Under the Whole Life system the insured may pay his premiums during the term of his life or for a limited number of years, say, 10, 15, 20 or more years. The Whole Life system by annual payments limited to 20 years is viewed with favor by men up to, say, 40 years of age, because the payment of premiums is limited to the most productive period of their life. The face of the policy is payable at the death of the insured.

A policy, the premiums upon which are

payable during the whole of life, does not appeal to the young man who believes he has a good grip of life. The premium is low, but the idea of paying premiums for every year of life has the appearance of undertaking a never-ending burden. This class is strongly attracted to the limited payment plan, under which the insured has a guarantee that his premiums are limited to a fixed number of years, no matter how long he may live beyond that period. Where the amount which may be laid aside for life insurance is a prime essential it is, however, sometimes advisable to insure on the Whole Life plan with continuous annual premiums. At age twenty, $1,000 of such insurance may be obtained for $19 per annum. The insured would have to pay 53 annual premiums before his total payments exceed the face value of the policy. To obtain insurance on this plan the life must be unexceptionable from the medical standpoint.

For those of advanced age, say over 50, the Whole Life plan by continuous annual premiums is usually the best because on most other plans the premiums would be so high as to be virtually prohibitive. At age 50, the annual premium for such insurance with profits is $47.05 per $1,000. It is estimated that after 20 premiums have been paid, or at age 70, the accumulated profits in a first class office with an established surplus earning reputation under such a policy would purchase a life annuity of $51 per annum. If this estimate be realized the insured would receive from the company, $3.95 per annum more than he would have to pay in premiums for the balance of his life. From this standpoint such a policy virtually becomes a 20-payment life policy.

It may be noted in passing that although Endowment insurance has become quite popular in recent years, the Whole Life system still reigns supreme in Great Britain as the policy above all others. The great bulk of insurance taken out there is on this plan, the usual practice being to apply the surplus at each distributing period, generally quinquennially, in purchasing bonus additions to the sum assured. A Whole Life policy, taken out with a good British company, at an early age, has been known to increase by the addition of bonuses to three times its original value.

The Endowment system provides not only insurance if death takes place during the endowment period, 10, 15, 20 or more years, but also, for the payment of the face of the policy on the completion of the period selected. It is an attractive system to one who may wish to provide a sum for investment or for other purposes at a certain fixed date in the future. It provides a means of saving with a guarantee that should early death ensue the amount of the policy is payable; hence it is especially popular with young men. Like the Whole Life policy, the Endowment policy may be paid for in a limited number of premiums. An Endowment insurance payable 30 years hence, or at prior death, may be paid for in 10, 15, 20, or 25 years, as the assured may choose at the time of applying for the insurance.

One of the most attractive policies for young men, say between the ages of 18 and 30, is the 30-year Endowment, with surplus or profits accumulated for 20 years. The premium payable is very little higher than that under the Whole Life policy by 20 annual payments. It provides the protection of insurance during the term of the policy and in addition the payment of the sum assured at the end of thirty years. When considered as at the end of the accumulated surplus period 20 years, the policy may be said to combine in a large degree the leading features of both the Twenty Payment Life and the Twenty Year Endowment

policy. At the end of the twenty years it is estimated, in such a class of company as has heretofore been described, that a return in cash will be made of $1.23 for every dollar invested, and this in addition to the value of the protection of life insurance during the entire twenty years. If the surplus credited at the end of the twenty years is allowed to accumulate, and the policy is continued to the end of the thirty years, it is estimated that a return of $1.54 in cash will be made for every dollar invested, in addition to the value of the protection of life insurance to the extent of the face of the policy during its term of thirty years. For a young man with a moderate income, and good chances of living out the endowment period, this plan will prove most attractive.

The flexibility of a life insurance policy is not always recognized at its true value. The modern policy contracts of representative life companies are framed to adapt themselves to the varying needs of the insured's circumstances. For example, twenty years ago a young unmarried man who was drawing a good salary, took out a twenty-year endowment policy with profits to be accumulated for twenty years, as a means of saving and to provide for his own mature years. Since then he has married and now his policy is about to mature. He finds that his wife and children need the protection of life insurance more than he needs the cash value of his policy. He is still in good health, and by consulting the terms of the modern policy finds that he may elect to take a paid up life policy payable to his family at his death for a very much larger sum (between two and three times larger) than the cash value of the Endowment policy. Now this policy was taken out with quite a different idea in mind, but the insured's circumstances have changed and instead of taking the cash he protects his wife and children by simply selecting that option contained in his policy which will suit his present purpose.

The advantages of life insurance are many and far reaching. It will provide, to a more or less extent according to the amount of the policy, for the family after the death of the bread-winner. In the event of the death of the father during the early years of his family, a life policy will assist, in no small measure, in the education of his children and thus prepare them for the struggle of life. Should he live to an old age, the assurance may provide a competence for his own support. The paying of premiums on a life policy is one of the best ways of encouraging thrift and economy. In many cases the money thus employed would be squandered or lost. If a man is well insured he may live up to his income, and yet not worry or become anxious about provision for his family. There is no other way of instantly providing an estate or a competence for the family by the payment of a small annual instalment as in life insurance. Many men purchase life assurance to protect their business, especially during its early or formative period —and especially when the success or failure of the business depends upon the life of the insured. The modern policy contract provides an option for the payment of the sum assured to the beneficiary in a fixed number of instalments; or during the lifetime of the beneficiary, instead of in one lump sum, thus the company becomes the trustee of the family or the estate, and all trouble and expense attendant upon the investment of the money is obviated.

At the expiration of the tontine period several options of settlement are provided to the assured in his policy. The following are the options generally offered:—

(a) Cash settlement in full.

(b) Part cash, part paid-up insurance.

(c) A life annuity.

(d) Part cash, part paid-up insurance and part annuity.

An illustration of the above may not be out of place. At age thirty-five, $1,000 of assurance on the 20-payment life system, with profits, will cost $36.95 per annum, or a total of $739 in twenty years. At the end of twenty years if the assured is living, he may take one of the following settlements:

1. Withdraw in cash the reserve which is guaranteed, $619, and the profits which are estimated, $272, making a total of $891; or

2. Apply the above $891 to purchase an annuity of $71 for life; or

3. Continue the policy with no further premiums to pay, which policy would be paid at the time of death of assured, $1,000, and purchase with the estimated profits, $272, more paid-up insurance, amounting to $437, making a total paid-up insurance of $1,437, payable at the death of the assured.

The foregoing will forcibly illustrate the desirability of obtaining insurance in a company which conducts its business cheaply. The less the cost of doing the business the more will the profits amount to, and therefore the less will the cost be to the insurer. If the company does its business at an excessive cost, the loss is borne by the policyholder.

It is not any more reasonable to expect a company to guarantee to make a certain amount of profits during a period of fifteen or twenty years than it would be for a wholesale or retail merchant to guarantee to make a certain profit out of his business in the same time, but it is reasonable to expect life companies to conduct their business conservatively and efficiently. When this is done there should be no good reasons for complaint on the part of the policyholders.

The utmost care should be exercised in the selection of a company in which to insure. It should stand two tests, first, that of safety, and secondly, that of earning profits. Do not fall into the error of supposing that a company is strong simply because it is big; mere bigness counts for nothing. It is just as likely to be a source of weakness as a source of strength. A strong life company should not only have first class assets to the extent of all of its liabilities and its capital stock, but a substantial surplus. It is regrettable to state that there are several companies not equal to this test. A young life company, unless exceedingly well managed, can scarcely hope to pass the first few years of its existence without an impairment of capital. When you find a young company that succeeds in this way, you may depend upon it, it is well managed.

If a company has succeeded in keeping its paid-up capital intact, in other words, providing a tidy surplus over and above all of its liabilities, and in addition has a substantial amount of uncalled capital, this, too, is another source of strength. The selection of risks is an index, too, of strength or weakness. The company whose death rate is high, is probably finding it difficult to obtain new business and may be taking greater risk by insuring poor lives in order to swell its volume of new business. A strong company in good repute is not exposed to the temptation of accepting questionable risks because it can obtain a satisfactory volume of new business without great difficulty. A strong company should show from year to year a steady progress in all departments.

It may be asked how can information be obtained along the lines indicated. This is not a difficult matter. The Superintendent of Insurance, at Ottawa, publishes annually a report which contains full details of each company's business. This report can be secured by application.

No company should hesitate to disclose frankly its financial position. Intending insurers would do well, therefore, to apply direct to the head offices of the companies for any information desired. The better way, however, is to apply to the Superintendent of Insurance, at Ottawa, for a copy of the latest blue book and make comparisons for oneself from the sworn statements of the companies therein set forth. These books may also be found in the public and reference libraries.

The future of life insurance in Canada from the standpoint of the policyholder is brighter than ever it was. The investigation by a royal commission recently made by the Dominion Government, has awakened an interest on the part of the public which augers well. It has also tended to make the companies more economical in management, more conservative in the investment of their funds, which tends to increase dividends and thus lowers the cost of insurance to the policyholders. Those charged with the management of our life companies are realizing more than ever before that they are in positions of most sacred trusts, and that the very semblance of self-interests and mal-administration must be entirely eliminated, otherwise their companies will never be found in the first rank.

MASSACRE OF THE INNOCENTS

By RENE BACHE

The health authorities of the city of New York have declared in a recently published report that 5,000 deaths of children in the metropolis are caused annually by the house fly.

The report states that 7,000 New York children die during the hot months of each year from intestinal complaints, and that the mortality from such causes would be reduced to 2,000 at most if proper precautions were taken to prevent the breeding of flies!

Unfortunately the same state of affairs exists in other cities, such as Chicago, Boston and Montreal. Multiply the number of victims by fifteen (a minimum basis of estimate) and you have 75,000 little boys and girls destroyed by the house fly through intestinal troubles on this continent annually.

The estimate is by no means exaggerated. Ask any intelligent physician and he will tell you that it is rather under the mark than over it.

"Summer complaint." Did you ever hear of it? Why, of course. Who, indeed, is not aware, at least in a general way, of the havoc caused by this notorious destroyer of babies—known in its various forms as "Summer Diarrhoea," "Summer Dysentry," "Cholera Morbus" and the like?

Why does it become a plague in summer, rather than at other seasons? Until very recently nobody knew why—though the supposition was that heat was the cause. Now, however, it is known that temperature has nothing directly to do with the matter. The house fly is the carrier of the malady.

The hot season is the season of flies. The germs that cause the plague that kills the babies are borne and distributed by flies. The insects introduce the germs into the milk or other food that infants eat, and the helpless little victims perish by myriads. There is no guess-work about this; it is proven fact.

It is an old story that breast-fed babies are relatively immune to "summer complaints." Up to now the reason why has been unknown—the supposition being that the constitution of the infant was stronger when the natural method of feeding was adopted. But the new knowledge shows that this theory was wholly in error. The breast-fed babies are rarely attacked by the plague, because the flies cannot get a chance to contaminate their food.

Quite an obvious proposition, truly, when once it is understood. But for an additional illustration take the fact that young children in cities are much more liable to fatal bowel complaints than in the country. Lucky are the babies that can be sent to the seashore, or elsewhere into rural parts in the summertime—their chances of survival under such circumstances being, as everybody knows, enormously increased. But why should this be so? The answer is easily given. Flies in the country are fewer, and, what is equally important, garbage and other filth are not so plentiful.

Right here is one of the most important points connected with this problem. The intestinal diseases that attack young children in summer are filth diseases. The germs that cause them are derived in every instance from filth, and the reason why house flies are carriers of these germs is that insects of this species are filth insects.

Among the by-products of domestic life is much filth of one kind or another. It ought always to be covered in some way (for the very reason here suggested), and thus protected from access by insects. But, as a matter of fact, it is too commonly left exposed, and the result is that flies which dearly love all kinds of nastiness, seek it, feed upon it, and lay their eggs in it—if it be of a character suitable for this last purpose.

Such filth is full of virulent microbes—germs of kinds which, when introduced into the human body, rapidly multiply, if they find conditions favorable to their growth. The "food tube" of a young child appears commonly to afford them a suitable breeding ground. They propagate in it in great numbers, incidentally discharging large quantities of a specific poison; high fever and other alarming symptoms ensue, and the child dies. "Summer Complaint," says a physician, shaking his head mournfully, as much as to say that the attack was of a common kind, yet too serious for medical skill to defeat. But what caused it? One miserable house fly.

Why did that fly which killed the child exist? Because it was bred, as if on purpose, in one of our stables, where 95 per cent of all house flies are propagated. Every stable where horses are kept is a fly hatchery, turning out millions on millions of flies every summer, to distribute "summer complaints" among the children of the neighborhoods in which they are situated.

When will the people wake up to the importance of this peril? They see their own children, as well as those of others, dying by scores and hundreds in the summertime. It is "God's will," they say, and weep. Bah! It is their own will—their own act. The plague that has killed their little ones came direct from the nearby stables. The flies bred in the stables brought it. Their children died of it. A very small amount of precaution on their own part would have prevented it. Who is to blame?

They, the people, are to blame, because they could do away with the whole mischief if they chose. It is not necessary to abolish the stables, or even to remove the horses. All that is needful is to prevent the breeding of the flies by keeping the stable manure covered in suitable bins or pits, so that flies may have no chance to breed in it, and to remove the accumulation once a week.

If this one simple precaution were taken, and enforced, regularly and conscientiously in the city of New York, or in Chicago, or in Boston, or in Montreal, or in any other community for four months in the year (from June to September), the deaths of children from bowel complaints would be reduced by at least four-fifths. In other words, out of every five little boys and girls who die under present circumstances from such maladies, four would survive.

Did you ever see a fly speck? Has it occurred to you to wonder how often an individual fly makes such a deposit? Well the answer is that according to careful and painstaking observations, five minutes rarely elapse during which an individual fly does not make at least one such speck. Each speck, as a matter of course, is a colony of germs.

World Views

Normal Living.

Many people spend their lives oscillating between two extremes — abusing their bodies and doctoring them. The result is dyspepsia, exhausted vitality, nervous diseases of all kinds, insomnia, mental depression, insanity, says a writer in Success Magazine.

The efforts of great surgeons to save lives are often ineffective because the resisting power of the body has been ruined by some form of vicious living, or by overeating, undereating, lack of sleep, or other transgressions of the laws of health. Many people die from minor surgical operations or amputations after accidents because of lack of physical reserve to assist nature in carrying them over the crisis.

The person who lives a perfectly normal life has a vast physical reserve power, which would carry him through any ordinary kind of disease, or tide him over any ordinary accident, a necessary amputation, or other needed operation. But when one uses up all his force, all his vitality, as he goes along, of course he has little or nothing to fall back upon in case of a severe accident or other emergency which calls for a great expenditure of physical force or vitality.

What is more pathetic than to see a young person, who ought to be right in the zenith of his physical vigor, cut off in a few days of pneumonia, fever, or some other acute disease, simply because when the great need came there was no reserve force, no stored vitality to tide him over the crisis.

The hard drinker, even though he boasts that he has never been drunk, stands very little show of pulling through an attack of pneumonia or passing through a severe surgical operation, because the cells of his various tissues are so demoralized, deteriorated, that they have no staying power, no disease-resisting force. They succumb to an attack which would be comparatively unimportant to the victim who had kept his physical reserves, his vitality, up to a high standard.

If for no other reason than that of self-preservation, protection against possible accident or disease, no one can afford to exhaust his physical forces prematurely by criminal dissipation or any other form of vicious living.

Germicides in Water.

Dr. Samuel G. Dixon, Pennsylvania Commissioner of Health, in an address on "Sanitation" recently, before the State convention of Engineers, said:

"It is a most hopeful sign that the sanitary engineers are interesting themselves in those medical questions which are naturally allied to their own profession. The secret of success in modern life lies in co-operation. In no department of industry or enterprize is this more true than in that which concerns the development, control or conservation of our natural resources, chief among which is health. Further, in an immense domain such as is covered by our country, governmental projects of vast dimensions become necessary, and here the co-operation of States with the General Government suggests itself as naturally as in lesser enterprises between individuals, municipalities and State governments.

Just now there seems to be a tendency based upon commercial expediency to de-

pend too much upon adding germicides to sewage and leaving the poisonous debris in the effluent. We are trying to accustom ourselves to drink water which the wise brute refuses.

Are we not forced to suspect that water treated with disinfectants introduced with the object of destroying disease germs which it may contain, may still convey resistant bacteria or spores, or even furthermore that the dead bodies of germs which have been killed may, in the act of their decomposition—for they are still liable to the inexorable laws of nature—give rise to chemical poisons of great virulence? So that while, as a makeshift, in cases of sudden emergency, in the face of serious epidemics, the use of chemical disinfectants in water known to be polluted may be tolerated, our ultimate purpose must be, so far as in us lies, to keep all poisons and effete matter out of our drinking water.

I wish to call your attention to the fact that experiments conducted in the research laboratories of our department have developed the fact that it is quite within the limits of possibility that the germs of that most destructive of all diseases at the present day, tuberculosis, may not infrequently find their way into drinking water. The maintenance of a pure water supply must, therefore, be added to the list of our defenses against the onset of that relentless foe."

These remarks of Dr. Dixon are timely, in view of the fact that the drinking water of several Canadian municipalities is now being treated with germicides.

The Anti-Spitting Crusade.

Active work in a revival of the anti-spitting crusade, in which the police and health department, women's clubs and a dozen other organizations are co-operating with the Chicago Tuberculosis Institute, has begun. The police are given special instructions to arrest all violators of the anti-spitting ordinance, and scores of members who are supporting the work are supplied with cards intended to be used as a warning to offenders and for the purpose of generally educating the public against the insanitary habit of spitting on sidewalks and in public conveyances.

The cards bear an engraving of a mounted knight in armor, above which is the caption, "Will You Become a Crusader?" The text reads: "In the interest of health, cleanliness and the law, you are earnestly requested to co-operate in enforcing the reasonable and sanitary regulations embraced in city ordinance No. 1493." This is followed by a quotation of the ordinance. The card bears the signature of Dr. Evans, commissioner of health, and the anti-spitting committee of the Chicago Tuberculosis Institute.

The cards are being handed out by club women, social workers, nurses and members of organizations which are aiding the movement. If one of the workers sees a man spitting in a car or elevated train or on the sidewalks the offender is politely handed one of the cards, which has the effect of warning him that he is in danger of arrest.

The police, however, will not use cards, but their authority instead, and the violator may get his warning from the Municipal Court in the shape of a fine.

A Hint to Other Universities.

The Engineering Experiment Station at the University of Missouri has planned some methods of water supply whereby the farmer can at all times have an abundance of pure water. The investigations conducted show that three systems are available to the farmer, either of which can be installed at a moderate cost.

The first system is by means of elevated tanks, either in the house or some outbuilding. The attic tank system can be

installed with a hot water supply complete for about $130. The use of a wooden or frost proofed metal tank is advised, as the sweating of a steel tank may cause some trouble in a dwelling house.

Of the three systems investigated, the attic tank is the cheapest, while the pneumatic system is considered the best for the farm home, or for private water supply systems.

The Engineering Experiment Station was established at the University of Missouri last year.

Dip Tank Milk.

"The most mischief, it is asserted, lurks in the store or dip tank milk, which is used principally by the poorer classes."

On this subject Dr. Milton J. Rosenau, professor of preventive medicine of Harvard, writes:

"It has been shown that 'store' milk contains on the average many more bacteria than any other milk found on the market. The studies that have been made in New York, Washington, and elsewhere, corroborate these findings that 'store' milk contains the most dirt, the largest number of bacteria, and is of the poorest quality. The investigations of the United States government show that milk kept loose for sale in stores is apt to be contaminated from the fingers of those who dip it, and from the drippings from the household utensils, in the process of dipping and pouring. Loose milk is also subject to contamination from flies, dust and other sources. If there is a case of typhoid fever, diphtheria, or scarlet fever, or other contagious disease in the family of the storekeeper or the customer, such loose milk is very apt to become infected and thus become a serious menace to the neighborhood depending on it for supply. Milk sold in the original containers relieves the storekeeper of responsibility that properly belongs to the contractor or producer. When the milk is bottled, the inspectors are able to fix the responsibility for any contamination more quickly and directly than at present. A very large proportion of the poorer population of the city depend upon store milk for their babies. This class of people need protection so that they may obtain milk that is clean, safe and reliable."

Psychology in Medicine.

In a paper read before the recent meeting of the Manitoba Medical Association, Dr. Duxbury presented several interesting features. Dr. Duxbury said: "Psychology is a science of mental processes and its claim to be considered by medical men is based upon the relationship existing between mind and body. Such a relationship has been considered and wondered at since the days of the earliest philosophers. Common sense, as well as experience, tells us that the relationship must be along the lines of interaction, that bodily conditions influence, and bodily emotions affect the bodily functions and attitudes. Grief causes secretion of tears and lessens the digestive powers. fear causes dryness of the mouth as well as a disturbance of the secretory functions. We have open-eyed surprise and open-mouthed wonder."

"It is necessary," continued Dr. Duxbury, "for a doctor to know the psychology of his patients. The one symptom which is generally most prominent to both patient and doctor is pain, and yet pain can never be measured in terms on which much weight can be placed. You must know your patient very well indeed, before you can judge accurately his statements regarding it. This indefinite measurement of pain has undoubtedly caused in medical men and nurses, that attitude towards suffering which has given birth to the idea of their hard-heartedness. The necessity of knowing the mental side of

a patient will keep medicine from passing solely into the hands of specialists. The close personal knowledge which a country practitioner may get of his patients is his greatest power in his fight against disease. He can almost prognosticate even the ills of his people, not merely from his knowledge of their physical constitution, but more because he knows their mentality."

Michael Servetus.

At Vienne, an ancient city situated on the left bank of the Rhone, some seventeen miles from Lyons, an interesting ceremony will take place on the 10th of this month, says the British Medical Journal. That day has been fixed for the unveiling of a statue to Michael Servetus, physician, theologian, and martyr. The city has granted a site and given a contribution to the funds. The deans of all the medical faculties of France, and a number of Frenchmen eminent in various spheres of intellectual activity have helped in the promotion of the scheme. Subscriptions have been received from every part of the world, but money is still required, and further contributions will be gladly received by M. Albert Monod, Secretary of the Servetus Monument Committee, Hotel de Ville, Vienne (Isere), France.

A most interesting account of Servetus has been given by Professor Osler. Servetus was an Argonese, born at Villanueva de Sigena, probably in 1509, though he also gave 1511 as the date. He was probably educated at the neighboring University of Saragossa, and Professor Osler thinks it possible that he may have studied for the priesthood; at any rate, there is evidence that when still very young he was well versed not only in Latin but in Greek and Hebrew.

After studying canon and civil law at Toulouse, he became secretary to Quintana, Charles the Fifth's confessor. In the suite of the Emperor he went to Italy, where he got his first impression of the worldliness and mercenary character of the Papacy, hatred of which soon afterwards became an obsession.

In 1530 he was present at the Diet of Augsburg, where Protestantism was first recognized officially. By this time Servetus had come to the conclusion that there was something to be said both for and against both sides. In 1531 he published a small treatise bearing the title, "De Trinitatis Erroribus," which shocked not only the Catholics but the Reformers. Bucer, whom Professor Osler described as "kind hearted," said the author of such a work should be disembowelled and torn in pieces. Servetus seems to have been a Modernist of a very advanced type.

So much out of harmony with his Protestant surroundings was he that he found it convenient to go to Paris, where for further safety he took the name of Villanovanus, by which he continued to be known for some twenty-one years. In Paris he met Calvin, with whom he debated theological questions. Some time later he went to Lyons, where he edited a splendid folio of Ptolemy's Geography for the Trechsels, the famous printers. He also helped Champier with his French Pharmacopoeia. He returned to Paris to study medicine, and there he met Jacobus Sylvius and Andreas Vesalius.

In 1537 he published a small book on syrups. A year or two later he settled at Vienne, where he was physician to Archbishop Paumier, in whose palace he lived. While practising quietly as a doctor he continued his theological studies, and actually had the Christianismi Restitutio, the work which ultimately brought him to the stake, printed at Vienne in 1553 while he was living under the protection of the Primate of Gaul. It excited the greatest horror, not only among

the Catholics, but among the Swiss Reformers.

It is generally said, and Servetus himself believed, that Calvin denounced the author to the inquisition at Vienne. Servetus was arrested, but, doubtless with the connivance of friends, possibly of his patron the Archbishop, he escaped. After a time he went to Geneva, which he seems to have expected to find a harbor of refuge. He soon discovered that he had fallen into the hands of enemies bent on his destruction, and he was burnt at Champel on October 27th, 1553. On the spot there now stands a monument of reparation to his memory.

The theological doctrines for which he gave his life have no interest for us. Only two complete copies of the work which was his ruin are known to exist. One of these, which is in the Bibliotheque Nationale, Paris, is thought by some to be the very copy that was bound to his body when he was tied to the stake, and snatched from the flames at the last moment by some sympathizer or some collector of relics. But the physiologist must venerate the memory of the man who discovered the pulmonary circulation. It is true that he attached so little importance to his discovery that he mentions it only as an illustration in discussing the nature of the Holy Spirit. Attention was called to the passage by Charles Bernard, surgeon to St. Bartholomew's Hospital, as is mentioned in William Wotton's "Reflections upon Ancient and Modern Learning," published in 1697. Meanwhile the lesser circulation had been rediscovered by Colombo, a pupil of Vesalius, and the fact was also known to Caesalpinus; but beyond all question Servetus described it some years before either of these anatomists, and it is fitting that his name should be held in honor among us. Professor Osler's sketch of him is a worthy memorial of one of the most tragic figures in medical history.

Shoo Fly!

The Washington, D.C., fly-fighting committee gives the following instructions:

To clear rooms of flies, carbolic acid may be used as follows: Heat a shovel or any similar article and drop thereon twenty drops of carbolic acid. The vapor kills the flies.

A cheap and perfectly reliable fly poison, one which is not dangerous to human life, is bichromate of potash in solution. Dissolve one dram in two ounces of water and add a little sugar. Put some of this solution in shallow dishes and distribute them about the house.

Sticky fly paper, traps, and liquid poisons are among the things to use in killing flies, but the latest, cheapest and best is a solution of formalin or formaldehyde in water. A spoonful of this liquid put into a quarter of a pint of water and exposed in the room will be enough to kill all the flies.

To quickly clear the room where there are many flies, burn pyrethrum powder in the room. This stupefies the flies and they may be swept up and burned.

If there are flies in the dining room of your hotel, restaurant or boarding-house, complain to the proprietor that the premises are not clean.

A contemporary commenting on this does not give its endorsement to the last paragraph. It says that it is just as well to be killed by the housefly as by the hotelkeeper.

But the other paragraphs might be clipped for reference, and one or all may be put to use. Above all things do not screen the house and let it go at that. This merely makes the house a mammoth fly trap with facilities for breeding. To live half the summer in a combined fly

trap and fly nursery is unpleasant. To die there in midsummer and miss the grape and peach season is extremely unfortunate, even in the case of the individual who is certain of ascending to paradise. A little trouble may avert the catastrophe, and as the grape and peach season is approaching, let us be up and doing.

Dairymen and Milk Commissions.

The members of Milk Commissions will help the dairymen to help themselves by giving them the benefit of expert advice, and by getting the physicians to recommend the use of milk coming from dairies which comply with the requirements of certification. In other words, the Milk Commissions will advertise those dairymen who are conscientious and want to keep their dairies up to a certain standard of cleanliness. A few examples of what medical milk commissions have done for dairymen might prove interesting.

Stephen Fansico, of Newark, N.J., the first dairyman to produce certified milk under the requirements of a medical milk commission, started with a small dairy consisting of thirteen cows. He now owns a herd of 625 cows, 750 acres of land, and produces 5,400 quarts of milk per day. He has been so successful and is in such hearty accord with the work, that he takes an active part in the work of the national association and his advice as to general regulations for dairies and dairy products is considered valuable to milk commissions all over the United States.

In Dayton, Ohio, a start was made certifying five quarts per day; in less than a year the demand necessitated a supply of 400 quarts per day, and the death rate of babies, under one year, dropped in one year from 16 per cent. down to 10 per cent.

In San Francisco the start was made with 350 quarts, and in a year jumped to 1,350 quarts per day.

In St. Louis it took a whole year to get a dairy to come up to the requirements, and when they started they sold only 495 bottles per day. In a year their sales had increased to 1,532 bottles per day. Now there are seven dairies producing 12,000 gallons of certified milk per month.

In Louisville, Ky., where dairy conditions are extremely bad, the first dairy selling certified milk, sold at the start only fifteen gallons per day, and in ltss than three months was selling 150 gallons per day.

In Cambridge, Mass., a certified dairy started with four daily customers on July 5, and by August 1 of the same year had 125 daily customers for certified milk.

In Philadelphia certified dairies now produce 2,700 quarts per day and are constantly increasing.

These are only a few of the examples of what certification under a milk commission has done for dairymen since Dr. Hy. L. Coit, the founder of the first commission, started some years ago to create a demand for clean milk. Leading children's specialists among the physicians of this country have been fighting for clean milk ever since it was demonstrated that it could be accomplished whenever and wherever the people wanted it.

It behooves every father and mother of an infant to discuss with their physician the absolute necessity for milk that is clean and controlled bacteriologically by an expert.

The Business Girl and Her Eugenic Beliefs.

Thus far the eugenists seem to have gone on the assumption that the masses are densely ignorant of their doctrines. This investigation may perhaps bring

them encouragement, says Robert Haven Schauffler in "Success Magazine." For, so far as the business girl is concerned, if she were rid of her besetting temptations and free to follow out her ideals, it would not be long before "the right of the child to be well-born would become the paramount consideration." Perhaps, even so, that great time is nearer than we dream.

The business girl's ideals, as well, of a possible husband are, with a few exceptions, more eugenic than those of the factory girl. One exception is the high income which they demand for him. For this demand, though it insures better conditions for the possible children, tends to raise the average age at which the girls marry, thus increasing their chances of falling victims to the violent temptations of business life and lessening by just so much their chances of marrying at all.

Other exceptions are their views on extravagance, their leniency towards drink; and worst of all, their dense ignorance of the menace of "the great black plague." "It is no crime," writes Dr. Saleeby with bitter irony, "for a man to marry, infect his innocent bride and their children; no crime against the laws of our little lawgivers, but a heinous outrage against Nature's decrees.

The "murderous silence" which has been preserved about this distressing subject will soon be broken by an outburst of popular indignation. Already the first faint rumors have been heard. Besides, other constructive suggestions have already been made. It is urged that doctors who know that their patients are going to marry against their advice should be relieved of the obligation of keeping "the professional secret"; that parents should insist on their daughter's fiance presenting a clean bill of health from their own physician as well as from his; and that the state should establish a Bureau of Health Marriage Licenses. Each of these proposals is, of course, open to objection. But this is natural, for we have only begun to let the light in upon this loathsome problem.

Allowing, however, for such things, the ideals of the girl of business hold out a rich eugenic promise. But, alas, this must be heavily discounted by the fact that business girls are exposed to such heavy temptations. It follows, then, that few reforms promise more for the future of America than a rise in the wages of the business girl, except, perhaps, a rise in the factory conditions.

This would attack the business girl's temptations in two ways. It would make it possible for her to dress decently within her income; and it would better her social position. This would make the men treat her with more consideration and respect.

All in all, the business girl is a most encouraging social phenomenon. For—temptations apart—both her character and her environment fit her to make a wise marriage choice from high motives, and to be a good wife and mother. Upon her should be centered much of our hope for the coming race.

Editorial

The Improvement Tax.

The City of Montreal has a habit of taxing enterprise in the shape of charging for building improvement permits, and a movement is now on foot—sad to relate encouraged by city architect McCallum of Toronto—to have Toronto and other civic centers in Canada follow suit. Montreal, however, has not been a particularly good example for sister cities in the way of civic public spirit and municipal management; nor are her taxed building improvements and income yet worthy of note in comparison, size being considered, with the untaxed improvements and municipal incomes elsewhere.

Rather should improvements be bonused, as is done in regard to good families in the Province of Quebec, than the maintenance of deterioration be encouraged by an artificial tax on progress.

Jail Conditions.

A jail should be sanitary and healthful. The bunks should be made of iron and there should be no possible place that could not be cleaned with the smallest amount of trouble. In addition to this there should be installed a shower bath in the jail and each prisoner made to bathe at least once a week. Very few prisons have these sanitary arrangements.

Many times people are arrested who are guilty of no crime. They are taken to jail and held. This is the proper procedure. The police may be holding the prisoner for investigation. They have a perfect right to do so. But the prisoner, who may be an innocent person and who will be released, has a moral right to demand that he be at least kept in a place which is free from disease germs, well ventilated and comfortable.

At one time the belief prevailed that a jail should be merely a place where prisoners could be securely held. No thought was given to the health or comfort of the prisoners. If a person was unfortunate enough to be arrested he was locked up. Where he was locked, the sort of air he had to breathe, the sanitary conditions of the place in which he was kept, the water he had to drink or the food he was given to eat, were matters which the public did not consider of much importance.

But it is different now; there is everywhere a growing demand that sanitary arrangements be such in all jails as to minimize to the greatest extent the possibility of prisoners contracting or carrying away disease.

Inter Alia.

In framing the indictment against slum life in great cities, most attention has hitherto been paid to the charge that the death rate among children in the congested districts is five times as great as it is in sections where better housing conditions prevail.

* * *

While this annual "slaughter of the innocents" is a very serious matter, social workers are now beginning to realize that the most pitiful victim of modern city life is not the slum child who dies, but the slum child who lives.

* * *

Every time a baby dies the nation loses a prospective citizen, but in every slum child who lives the nation has a probable consumptive and a possible criminal. Though the child is a national asset, and

the loss of a child means a loss of dollars and cents to the nation, in the case of the slum children those who survive usually cost the city and the nation more than those who succumb. To care for the sick and to protect themselves against the vicious and criminal, the city and the nation spend millions of dollars a year, and it is undoubtedly a fact that this annual budget is twice or three times as large as it would be but for "gutter-snipes" who survive.

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But this, of course, is a purely mercenary view to take of the great problem, the most deplorable feature of which undoubtedly is the deprivation and suffering that the slum children have to endure.

* * *

Shut out from the sunshine, reared in ill-smelling, badly ventilated rooms, herded together like cattle, the weak with the strong, the sick with the well, exposed to the cold in winter and overcome by the heat in summer, the tenement babe has a pitiful struggle for existence, and if it survives must be a puny, ill-nourished specimen at best.

* * *

It is a fact, too, that the infants who might be supposed to be less fitted to withstand the evils of tenement life than the adults, are really called upon to bear the brunt of them, for the parents and the young men and women, the bread-winners of the family, are usually required to be away from "home" the greater portion of the day, and thus escape the foul conditions prevailing in the congested districts.

* * *

Though conditions in the factories are not always of the best, they are at least more tolerable than those to be found in the teeming tenements, and the workers get a breath of fresh air and a few unobstructed rays of sunshine while going to and from their work as well.

* * *

But the children who from morn to night are locked in the cubby-holes which rent as rooms, while their parents are out at work or seeking employment, are never reached by the beneficial sun, whose rays are cut off by the tall tenements which stand as close together as it is possible to lay brick to brick.

* * *

Some of the children are more lucky; they manage to find their way to the gutters, where they stand a fair chance of being crushed by passing vehicles, which is a far better fate than the life of misery and squalor to which they are destined. But even in the streets conditions are not much better. True, there is more air and light, but the air is impregnated with the odor of exposed garbage and filth and the tall tenements obscure the light.

* * *

As the children grow up to school age, they spend a few hours a day under better auspices, although in many of the large cities, recent investigations disclose that conditions in the schools are most unhygienic. The schoolrooms, as a rule, are overcrowded, and many are insufficiently ventilated and poorly lighted.

* * *

Children reared under such conditions are bound to become stunted in growth and prone to disease, and until conditions are radically changed in this respect the fight against the white plague might as well be postponed.

* * *

Playgrounds and recreation stations afford some measure of relief, and there are a number of institutions and societies, national and local, which are advo-

cating their extension as the most practicable solution of the tenement question.

* * *

We can't hope to do away with poverty, but there is no excuse for squalor. While poverty exists there will be ill-clad and ill-fed children, but there is no reason why any child should be deprived of the blessings of sunshine and fresh air.

* * *

With the increasing, enormous growth of population in the great cities, the problem of securing sunlight and fresh air for women and children has attained a prominence equal to that of the world-wide fight against disease. It is, in fact, the basic cause of disease and crime, for the absence of sunlight and fresh air is the fundamental cause of three-quarters of the misery, deaths and violence among the peoples of the earth. Sociological workers who have recently been investigating conditions in large cities have arrived at the conclusion that conditions are worse to-day than at any previous period in the history of civilization.

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The Tenement House Department in New York has just reported that there is more than one hundred thousand living rooms in that city absolutely without windows.

* * *

There are nearly three hundred thousand living rooms with inadequate light and air! More than one hundred thousand New Yorkers live in cellars, barred from both sunlight and air!

* * *

These things are beginning to tell. In the foreign quarters of New York the congestion is, perhaps, seen at its very worst. Its effect is reflected in the fact that in these quarters children have a death rate almost five times that of the city as a whole from preventable diseases. Their mortality from intestinal diseases is double that of the city as a whole.

* * *

It has been conservatively estimated that in the past year 27,000 deaths from scarlet fever, cerebro-spinal meningitis, measles, whooping cough, intestinal diseases, tuberculosis and other communicable diseases occurred. All might have been absolutely prevented but for the conditions prevailing in the tenement districts. A conservative estimate of the economic waste in dollars and cents involved in this unnecessary mortality list puts it at between thirty-seven and forty million dollars per year.

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When, in what is supposed to be one of the most highly civilized cities in the United States, such mortality can occur —a mortality which overshadows that of war—something must be radically wrong.

* * *

Dr. Antonio Stella, a distinguished Italian physician and social worker, says that the lack of fresh air and sunlight is at the base of all the ills of Italian children. An analysis of the death rate in Italian sections of cities is shown to be in direct proportion to the state of congestion in the same districts.

* * *

If such conditions continue, what will be the fate of hundreds of thousands of children who are born and raised in these congested centers? Minds are dwarfed and deformed; mental and moral degeneracy follows; disease plays havoc and is spread through the country; a great number of men and women inferior in minds and bodies are raised, instead of what should be a race of increasing efficiency.

* * *

Among our special articles in this issue

of The Canadian Therapeutist and Sanitary Engineer will be found the curious plan of Dr. Pierre Roveda, of Milan, an architect and social scientist of recognized authority in Europe. Dr. Roveda's scheme may seem Utopian to many, but at least it recognizes the pressing necessity for some device which will clean out the crowded tenements and give the men, women and children a chance to live.

* * *

Because a pint of milk he sold contained 21,000,000 bacteria, Anthony Lalowski, milk dealer, was fined $100 and costs in Chicago. The case was a test and is the first one of its kind in which a conviction has been obtained.

* * *

Toronto is to be congratulated upon at last securing the acceptance of Doctor Charles Sheard to his reappointment as City Medical Health Officer. The members of Toronto's City Council found it impossible to agree within a reasonable length of time on the appointment of any other man who could continue Dr. Sheard's work, but were practically unanimous at all times in their efforts to have Dr. Sheard retain the place.

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On the twelfth of last month Dr. Sheard, therefore, gave out the following statement:

"I accept the extraordinarily large vote given in the Council for my reappointment as an expression of confidence in my work, endorsed by freely expressed public opinion, and so far it is gratifying to me and would influence any man of feeling. When I resigned I did so because I desired more leisure than I could conscientiously take while engaged in city service. Since my resignation difficulties have arisen in connection with appointing my successor which no one could have anticipated. These have appeared to grow rather than diminish, and realizing this I feel it is my duty to continue in office and endeavor to discharge its duties faithfully and conscientiously as long as I am able."

* * *

It is contended that either men or flies must die. Both will continue to do so, no doubt, but it is possible for the fly-killing man materially to reduce the numerical strength of the man-killing fly, as Mr. Rene Boche contends in another part of this issue.

* * *

It used to be the custom merely to fight the flies off the food long enough to eat it. Nowadays it is important to prevent them from contaminating the food, and in this way save the human race from full many an infection that is bred unseen where the housefly tarries a moment to gambol on the berries or promenade across the sugar.

* * *

An interesting feature in connection with the United States Army Encampment at Grant Park, July 4th to 14th, was the methods of sanitation pursued by the quartermaster's detail in laying out the camp. All refuse and garbage was burned daily in twenty giant incinerators of the latest pattern. These were burned out every night after all visitors had left the camp, and they were so arranged that there was not the slightest odor in connection with the process.

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Dr. E. O. Steeves, chairman of the New Brunswick Board of Health, in overseeing the sanitary arrangements in Campbellton after the recent great fire, found that a source of danger in regard to a possible epidemic lay in the refuse, such as canned goods, barrelled beef, etc., lying under the ruins in the basements of grocery and wholesale houses. A great heap of hard and soft coal, near the wharves,

which had been burning fiercely since the fire, was therefore pressed into service as an incinerator.

* * *

In the light of what has been learned about the housefly, there is no longer any excuse for the gay insouciance of the poet who wrote a summer boarding-house lyric in which these lines occur:

Here, sir, is your currant pie,
Alternating currant pie.
First a currant, then a fly,
'Neath the crust, alternate lie.

* * *

The sanitation of the United States Army camps is now so arranged that there is not the slightest chance of an epidemic such as happened in camps during the Spanish-American war.

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The best evidence of this was given two years ago during the big encampment at Fort Benjamin Harrison, at Indianapolis, when 30,000 soldiers camped for weeks during the hottest weather, yet the sanitary arrangements were so perfect that not a single case of typhoid appeared.

* * *

Dr. Alvin Davidson, of Lafayette College, Pennsylvania, an eminent bacteriologist, has given out some startling facts about the evils of the public drinking cup or dipper in schools. He recounts the results of tests that have shown thousands of germs of various diseases to be transmitted by this means.

* * *

Tuberculosis, scarlet fever, measles and diphtheria are among the ailments school children are apt to contract through the general drinking cup; and the necessity of abolishing public drinking vessels everywhere is urged.

Characterizing many Montreal churches as "death traps from the point of view of sanitation," church members and physicians have started a movement to have the anti-tuberculosis society begin at once a campaign for better sanitary conditions in the edifices of Montreal, especially the big central churches.

* * *

It is pointed out that more people who are victims of incurable contagious diseases go to church than to any other place of public resort and that less care and less money is expended in keeping the churches clean and ventilated than any other class of buildings in the city.

* * *

In most of the great European cities freight trains are not allowed within the city limits. That does away with a great deal of smoke, but even at the big European freight terminals there is very little smoke. They know how to handle the smoke evil over there, that is all. They enforce a law.

* * *

Among the latest improvements to be taken up by the officials of the B. & O. Railway is the individual paper drinking cup. In a general order a provision has been made whereby all passenger coaches on the Pittsburg division of the road shall be equipped with cups as soon as possible. The installing of this feature in the service will mean the expenditure of a considerable sum of money by the railroad, but according to one of the higher officials the money will not be taken into consideration when the health of its passengers is at stake. The cups will be furnished by porters for a small remuneration.

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What of Canadian roads?

Library and Laboratory

Pulmonary Tuberculosis — Its Modern and Specialized Treatment, by Albert Philip Francine, A.M. (Harv.), M.D. (U. of P.), Instructor of Medicine, University of Pennsylvania; Director of the Pennsylvania Society for the Prevention of Tuberculosis. (Second edition, illustrated. J. B. Lippincott Company, Publishers, Philadelphia and London.) This little work on the special treatment of Tuberculosis is easily one of the best of its kind. Each of the important topics pertaining to the modern treatment of tuberculosis, viz., Rest, Exercise, Fresh Air, Climate, Diet, Tuberculin, Serumtherapy, and Special Drugs is dealt with rationally and concisely. The practical side of each subject is always kept in view and the line of treatment suggested is based on the results of clinical experience. It is not necessary for one to agree with everything which the book contains to recognize that it is as the preface states it was intended to be, "A useful guide for those who have tuberculosis patients under their care and are in search of practical counsel in the details of management." It is well written and quite readable and should be a useful addition to the library of the busy practitioner.

* * *

A Pamphlet on Dentition, by Dr. William R. Woodbury, neurologist, to the Boston dispensary, contains the following statements:

"Dental cripples cannot get full value from food. Bolted food does not properly nourish.

"A young woman with a neglected mouth finds it difficult to obtain and keep a good position in business and among her friends. White, even teeth add greatly to the attractiveness of any face. They carry assurance of neatness and honesty —excellent recommendations.

"Unsound, irregular teeth, swollen tonsils, and adenoid growths are closely related. Neglected teeth and a dirty mouth cause diseased tonsils and obstructed nose."

* * *

Typhoid Serum Injection. Eighty-one soldiers at Fort Banks, Mass., have submitted to inoculation with an antityphoid fever serum. They volunteered in the fight the government is making against the disease. Half a cubic centimeter of serum was injected into each man's arm, and two more injections are yet to be undergone. The work is under the direction of Major Robert U. Patterson, who says he hopes in time to reach the public and eradicate the disease from the country.

* * *

Lawrence Veiller's "Housing Reform." The following paragraphs are from Lawrence Veiller's new handbook, "Housing Reform":

Poverty is a germ disease.

Every American city has its housing problem.

Good intentions do not make a model tenement.

When there are no homes there will be no nation.

Efficient housing administration to be successful must be sane.

One good photograph may often accomplish as much as a lawsuit.

Unventilated rooms and bad plumbing are subtle and sure destroyers of health.

The tall modern, expensive looking tenements of our large cities, fair on the

outside, are whitened sepulchers, containing within dark rooms and narrow air shafts, poisonous plumbing and countless other evils.

* * *

Therapeutisches Lexikon, by Dr. J. Hahn. Leipzig: (Wilhelm Engelmann. 1910. Fcap. 8vo, pp. 822. M.12=11s. 9d.): A therapeutic lexicon may be a useful compilation if it is fairly complete, and if the reader utilizes it merely to refresh the memory. On the other hand, it should not be tolerated for the purpose of actually imparting knowledge. Dr. Hahn has succeeded in piecing together much of what passes as therapeutics, and has arranged his material alphabetically in his *Therapeutisches Lexikon,* giving a separate note to each method of treatment, and to many conditions requiring treatment. In this way he has rendered the book satisfactory from the point of view of completeness, and has even added notes on matters which need not have been included. His manner of dealing with his subjects rather suggests the wholesale treatment of symptoms or diseases without any consideration to the personal factor. The book may be very useful in the hands of an intelligent and well-informed practitioner, who would not accept everything in the book blindly, and who would merely refresh his memory on special points in special cases. We are, however, inclined to consider that there is no real necessity for such a cut and dried epitome of treatment, although we admit that the book has been carefully and well compiled.

* * *

Mortality Statistics. In the United States mortality statistics just published by the Census Bureau it is stated that Prof. Irving Fisher, in his report on "National Vitality" to the National Conservation Commission, found that out of every 100 deaths that occur from children's diseases up to the age of 1 year 47 per cent. may be prevented, and of every 100 deaths from such diseases between the ages of 2 and 8 years 67 per cent. may be prevented by putting into practice our present knowledge of sanitary measures. This would mean, says the census report, "applied to the 200,000 deaths of infants and children in the registration area, or the possible 400,000 deaths among these classes in the United States, a saving of at least 100,000 and 200,000 lives each year, respectively."

* * *

Consumption—Its Relation to Man and His Civilization, Its Prevention and Cure, by John Bessner Huber, A.M., M.D., Fellow of the N. Y. Academy of Medicine, of the National Association for the Study and Prevention of Tuberculosis, etc. (J. B. Lippincott & Co., Philadelphia and London): As stated by the author, this work is intended to be a comprehensive exposition of the effect which consumption has had upon civilization, and a consideration of its relation to human affairs. It points out truly that medical science alone and unaided cannot cope with the tuberculosis problem, but must enlist the co-operation of other forces — economic, legislative, sociological, and humanitarian. The work is addressed to the layman as well as to the physician. It deals with well-established scientific data in a plain and interesting way that will commend itself especially to the laity. To the latter it supplies a fund of information, clearly and concisely expressed, valuable alike for the prophylaxis and treatment of the disease. The work contains 131 well selected illustrations. Altogether we believe it is a valuable contribution to the campaign of general educative work among the people and as such merits a wide distribution.

Open Mail

To the Editor of The Canadian Therapeutist and Sanitary Engineer.

A Pertinent Question.

Dear Sir:

Can anything be more idiotic than the persistency with which this so-called "dry street sweeping" is carried on? In different parts of our cities we find men in gangs or singly, pushing brooms, and thereby raising clouds of dust to the discomfort of passersby, as well as dwellers on the streets. Are not our cities dirty and dusty enough without having them made worse by this folly? You see men pushing these brushes or brooms, while right at their hand is a fire hydrant and an inexhaustible supply of water. The proper way to clean city streets is by flushing them. If city streets have to be cleaned by sweeping, why not use a sprinkling can to lay the dust before they are swept? The writer remembers the street sweepers of New York sixty years ago, when the streets were paved with cobble stones and birch brooms were used. In those days water cans were used before the dirt was disturbed by the brooms. What interest is behind this idiotic policy of making dirt, dust and discomfort?

M. F. B.

* * *

Sewage in the United Kingdom.

Dear Sir:

In forwarding the following information, in answer to your inquiry concerning the sewerage system of Birmingham, I understand that the public health act of 1875, and the amendment thereto of 1890, apply to all the cities of the United Kingdom:

When Birmingham requires a new sewer, plans are prepared by the surveyor's department and submitted to the city council. After being approved by the council they are submitted to the Local Government Board, a national body, which sends an inspector and holds a hearing at which any taxpayer has a right to appear and protest against the plan or proposed changes; then the Local Government Board either approves the plan or suggests certain amendments.

Assessments are not made upon property holders upon the line of the proposed sewer for construction, but are paid for by the city as a whole, or by any separate authority adjoining the city through which the sewer passes. The cost of construction of sewers seems to be generally raised by loans.

Practically all the Birmingham district is under the Tame and Rea drainage board, and the sewage is treated in bacteria beds outside the city until the water is pure enough to be turned into the streams. This is excellently managed, and visitors from foreign countries who are interested in sewerage systems have come to study the Birmingham model.

Under the public health amendment act of 1890, no manufacturer may discharge into a sewer steam of a greater temperature than 110° F., while acids, alkalis, and other materials that may be harmful to the sewers can not be discharged thereinto at all.

A. H.

* * *

The Case for Cess Pools.

Dear Sir:

Much discussion has arisen from reports on the evils of cess pools. All think-

ing people know that where there is no sewer, other methods must be applied to insure reasonable sanitation; and I am one of those who believe in the cess pool. But I have had trouble.

Two years ago last spring I built a brick cess pool, partly cemented, and one year ago it was inspected by a sanitary officer and passed. No odor ever escapes as the top is covered by an iron plate and earth. The nearest well except my own is 75 feet distant and mine is 40 feet and I venture there is no better water in the country than comes out of this well. The trouble started this way: A neighbor, during the heavy rains of two years ago, in order to keep the rain water that fell on the house out of the cellar, turned it into a nearby well; the result was, bad smelling water, quite unfit for use as the well water and rain water coming together set up an action that produced the above results, and it was all laid to my cess pool. After this course was discontinued his well water was again all right. There has been no sickness in the neighborhood that could be traced to unsanitary conditions for two years, and in fact little sickness of any kind. And the first official notice that has ever been served on me was about one month ago, and then without asking any questions, as to the conditions about my premises. But this was the result of a belated complaint regarding the former condition of my neighbor's well, which I found it necessary to investigate and explain as above to the authorities. My cess pool has since been inspected again and passed.

A. E. J.

Meetings and Reports

Meet of Cities Planned.

A municipal equipment congress, international in its scope, is announced for the fall of 1911. The congress will be held in the Chicago Coliseum, September 18th to 30th. Mayors or delegates from world cities of importance will be invited. Some exhibits will be modern street cleaning devices, voting machines, paving specimens, lighting apparatus, models of bridges, street railway specimens, and other features of municipal development. Sanitation and health devices will also be on exhibition.

Municipal Convention.

The tenth annual convention of the Union of Canadian Municipalities will be held in Toronto from Wednesday, August 31st, until September 2nd.

A general discussion will take place on the ability of boards of control. The functions of the board of control will be analyzed and compared with those of similar governing bodies.

Washington Conference of Health Officers on Hygienic Transportation.

The health of the traveller was the main question taken up in Washington recently at the Conference of Health Officers. It was regarded as one of the vital remaining problems of medical administration.

The general idea advanced is to regulate the passenger traffic on railroads over which there is no efficient supervision under present conditions; to compel the trains to take on drinking water, not where it is most convenient, but where the water is purest; to clean coaches and sleepers at correct intervals, with vacuum cleaners instead of just stirring up the dust and disease germs with a broom; to see that the diners are always sanitary and the food in the right condition, and to regulate the travelling of persons in ill health.

The danger of contagion to the traveller is great. Nowhere, as in public conveyances, are all sorts and conditions of men compelled to make common use of such close quarters, coming and going in such a transient way.

Thousands of consumptives use the cars, leaving the germs of tuberculosis in the plush upholstery. Typhoid largely comes from travellers.

But the real source of danger is the man who has just been sick and thinks he is cured, and the man who simply "feels punk" and wants to go home. These use the cars with impunity.

Sanitation, unremitting and scientific, is the only cure. Some of the present evils must be stamped out.

Maritime Medical Association.

At the nineteenth annual meeting of the Maritime Medical Association, held in St. John, N.B., on July 20th and 21st last, Dr. Charles A. Hodgetts of Ottawa read a most excellent paper on "Public Health." Dr. Hodgetts pointed out the increasing prominence that matters of prophylaxis were taking in the eyes of the modern physician, but deplored the fact that many medical practitioners still ignored the preventive side of medicine in a general sense.

Other interesting papers were read, among them being "Osteopathy," by Dr. G. G. Corbet, of St. John, N.B.; "The Subconscious and its Relation to Certain

Functional Neuroses," by Dr. Alex. Ross of Alberton, P.E.I.; and "The Laboratory in General Practice," by Dr. Wm. F. Roberts, of St. John, N.B.

Plumbers Talked on Sanitation.

Problems of sanitation and kindred subjects formed leading topics of discussion at the twenty-eighth annual convention of the United States National Association of Master Plumbers held recently in Chicago. There were fully 1,500 delegates present.

Chicago and the Flexner Report.

In a broadside of condemnation tempered by sorrow, President Edmund J. James of the University of Illinois, speaking recently before the alumni of the College of Physicians and Surgeons of Chicago, declared there is not an adequate medical school in the city of Chicago—that the city and the state of Illinois present a scandal to the nation.

President James' remarks came as a regretful affirmation of the excoriation of medical education in Chicago as set forth in the Flexner report made public by the Carnegie foundations. The distinguished educator not only condemned existing medical schools in Chicago—all of them—as deficient, but asserted that in the number of fake schools Chicago leads the country. In respect to medical education he defined Chicago and Illinois as being in the "pioneer stage."

President James' remedy for what he considers the disgrace of the city and the state is liberal endowment. He said the state and private citizens of wealth should together contribute to give Chicago a medical college on a par with any in the country.

Replies in commendation and censure came thick and fast during the discussion following.

Sinister motives were charged by Father A. J. Burrowes of the Bennett Institute, who said the recommendations of the Carnegie foundation through Abraham Flexner lean toward depriving the poor man of an education.

Dr. James B. Littlejohn of the Littlejohn college offered a defence of the state board of health and challenged the right of the Carnegie foundation to "either criticize or praise."

Dr. Ludwig Hektoen of Rush Medical College declared that something should be done to curtail the output of medical students, who, he said, are being graduated twice as fast as they are needed. He pleaded for fewer and better medical schools.

International American Conference.

The fourth International American Conference was held last month in Buenos Ayres.

This conference proved to be one of the most important that has thus far been held, and northern delegates urged the adoption of a number of measures of great general importance.

One of these was the adoption, as far as practicable, of laws regulating patents, trade marks and copyrights among the countries represented.

Up to this time a most unsatisfactory condition has existed with respect to the observance of laws governing these matters, and it is hoped to bring about a satisfactory solution of the difficulties hitherto encountered with respect to them.

Another matter strongly urged was the adoption of uniform laws and regulations regarding consular documents and the technical requirements of customs regulations.

Still another matter of great consequence was an adequate provision for sanitation and quarantine among the

several countries. Canada and the United States specifically desire the adoption of some plan by which outbreaks of epidemics may be prevented as far as possible and other governments promptly notified in cases where there is danger of the spread of epidemic diseases.

Another question was that of the completion of the intercontinental railway system north and south through the three Americas.

Conference of Charities and Corrections of Canada.

At the eleventh Conference of Charities and Corrections of Canada, held in Guelph, addresses of welcome were given by local citizens interested in this work, and papers were contributed by Mr. Herbert Bowman, of Berlin, on "Commitments to a House of Refuge," by Miss Brooking, superintendent of "The Haven," Toronto, and Mrs. O'Sullivan, superintendent of the Mercer Reformatory, Toronto, on "The Importance of Protecting Friendless Women and Girls," and by Mr. A. Chamberlain, president of the British Welcome League, Toronto, on "The Immigrant as a Future Citizen."

President Joseph P. Downey, M.P.P., presided throughout the session, and the delegates, coming from all parts of the Dominion, included many of the most prominent workers in charitable and reform movements in Canada.

President Downey, in his address, referred to the work of the organization, to the deaths from tuberculosis, and in referring casually to the immigration question, Mr. Downey declared that if we would but give as cheerfully and work as earnestly for the preservation and protection of those we have as we do now to bring to our shores people we know not of, we would go a long way towards solving one of the greatest problems that confronts Canada at the present time. We were too much disposed to conclude that the infant sacrificed through want of proper nourishment, and the young man or woman who fell below the slow-moving sickle of tuberculosis, were victims of an inexorable law.

Referring to the change being brought about in reformatory methods, Mr. Downey said: "The institution at Toronto will soon, let us hope, be but a memory of the preventive system that was; the farm at Guelph a demonstration of the wisdom and efficacy of the reformation system that is."

Congress of German Scientists.

The eighty-second congress of German scientists and medical men will be held at Konigsberg from September 18th to the 24th. Full particulars can be obtained from Dr. Rosenstock, Konigstrasse 80, Konigsberg.

Labor Legislation Association.

Delegates from all countries will attend conferences on labor legislation to be held at Paris, France, September 18th to 24th, at Sugano, Switzerland, September 25th to 28th, and at Brussels and The Hague later this year.

Postscript

The Chairman of Toronto's Board of Health.

The "New Idea" has this to say of Toronto's Board of Health Chairman:

Newcastle claims him for a native, for he was born there when quite young, about 37 years ago. Since that time Henry A. Rowland has battled for his own, and it only needs one look at his square jaw to convince anyone that Brother Rowland usually brought back what he started out to get.

His advancing record is so consistent, steady and certain that it is well worth a place in "The New Idea" as a stimulant to others who perhaps feel that there are no opportunities to-day without capital.

His four years' apprenticeship was completed with his preceptors, Farncombe Bros., of his native town. On graduation he became manager of the East End Pharmacy of Dr. J. B. Gullen, on Parliament street, Toronto. Five years of efficient service and careful saving enabled him to form a partnership under the name of Rowland and Galbraith on Gerrard Street east. Three years' more intelligent effort and he bought out his partner, while a year later his present premises were purchased.

Two jobs in nine years is characteristic of the man and the steadiness of his purpose in life. His habit of making and holding friends naturally led him into politics, and while he does not allow it to interfere with his business, he is one of the very few druggists who have ever been able to qualify as an alderman in Toronto.

Alderman Rowland is a staunch Anglican and possibly an even more staunch Conservative. These two perhaps are not inconsistent, but aside from that H. A. seems to be a right good citizen and a good druggist and a good fellow. His career is a striking illustration of the fact that with grit, brains and untiring energy a success can be won by any man who makes up his mind that it can and will be accomplished.

Ventilation.

Physicians agree that when natural ventilation is properly and scientifically applied it invariably proves more successful than mechanical or other forms of artificial ventilation, and it has the advantage that it cannot get out of order nor break down, and costs but little to apply and nothing to maintain.

One of the best systems of natural ventilation is that obtained by the use of the Universal No-Draught Ventilator, the invention of Mr. J. A. Glass of Leader Lane, Toronto. By the use of this ventilator, which is sold by the foot so that it may fit any window, plenty of fresh air is admitted while annoying draughts are avoided and flies, dust and rain prevented from entering. At the same time impure air escapes in a simple and efficient manner.

As You Give, So You Receive.

Life is a magician's vase, full to the brim and so made that you cannot thrust your hand into it, or pour, or sip, or draw out of it.

It overflows into your hand only when you drop something into it.

And what you get is of the same quality as that which you give.

If you drop in love, it overflows love. If you drop in charity, it overflows charity. Drop in envy and jealousy and hate,

Duncan Anderson, M.D. — *Publishing Committee* — L. M. Coulter, M.D.

The
Canadian Therapeutist
and
Sanitary Engineer

INCORPORATING THE CANADIAN JOURNAL OF PUBLIC HEALTH

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From flies and filth to food and fever.

Clean up your houses and yards. Municipal housecleaning time is on.

This is the time to look out for flies. The common house fly is a carrier of disease.

Rules dealing with the fly pest:

Screen your food.

Do not allow decaying material of any sort to accumulate on or near your premises.

Keep the flies away from the sick, especially those ill with contagious diseases. Kill every fly that strays into the

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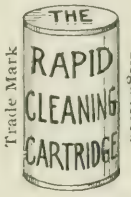

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"The Inhibitory Action of Listerine," a 208-page book, descriptive of the antiseptic, and indicating its utility in medical, surgical and dental practice, may be had upon application to the manufacturers, Lambert Pharmacal Company, Saint Louis, Missouri, but the best advertisement of Listerine is—

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Keep all receptacles for garbage carefully covered and the cans cleaned or sprinkled with lime or oil.

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Pour kerosene into drains.

Cover food after a meal; burn or bury all table refuse.

Screen all food exposed for sale.

Screen all windows and doors, especially the kitchen and dining room.

Burn pyrethrum powder in the house to kill the flies.

Don't forget, if you see flies, their breeding-place is nearby filth. It may be behind the door, under the table or in the cuspidor.

If there is no dirt and filth there will be no flies.

Of Course Not.

"By the way, Elder Browne, why is it that you always address your congregation as 'brethren,' and never mention the women in your sermons?"

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Late and heavy eating makes light and troubled sleeping.

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There would be less need for the fasting treatment if the feasting fetes were less numerous.

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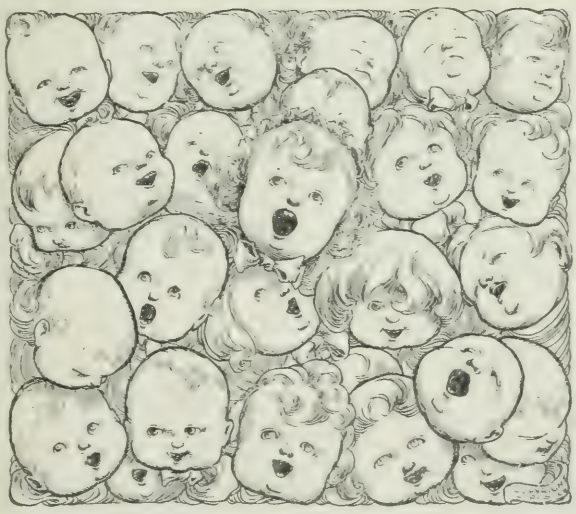

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Designed to suggest immediately any desired word or phrase needed to express exactly a given idea

By FRANCIS ANDREW MARCH
LL.D., L.H.D., D.C.L., Litt.D.

THE FOUR GREAT CARDINAL POINTS OF MARCH'S THESAURUS

FIRST. It supplies you with the word that memory fails to recall to exactly express an idea.

SECOND. It finds the missing word—the word you do not know—to precisely express any thought that you may have in mind.

THIRD. It extends knowledge and creates new ideas by grouping all related words and their meanings that express thought on any subject.

FOURTH. It gives one absolute and almost immediate command of the entire English language.

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